Oregon Greater Sage-Grouse Population Monitoring: 2026 Annual Report



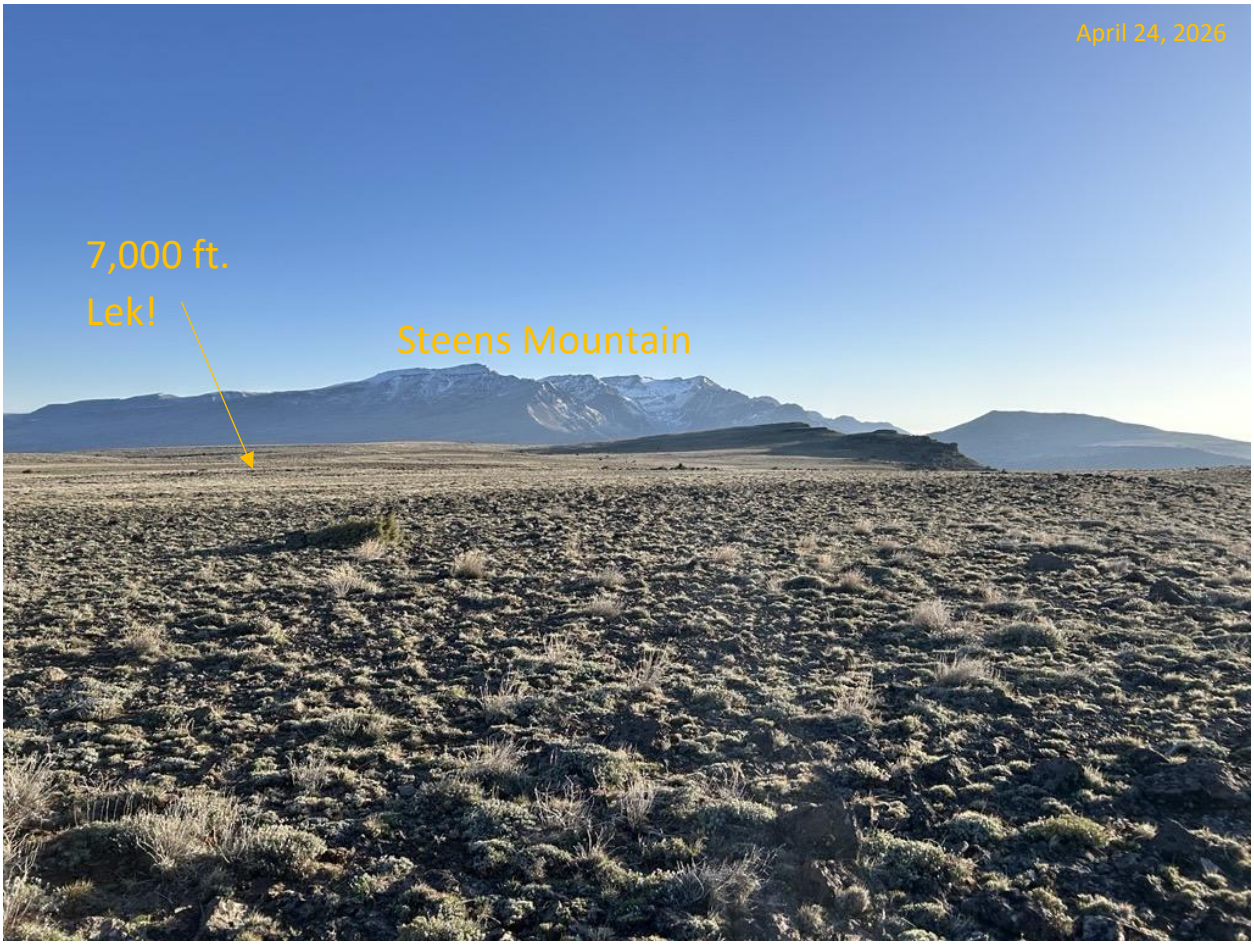
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TABLE OF CONTENTS

PAGE

EXECUTIVE SUMMARY 1

OVERVIEW AND SPRING POPULATION MONITORING METHODS 1
Background on Lek Monitoring Efforts 1
Lek Monitoring Methods 2
Lek Data Analyses 6

LEK MONITORING EFFORT AND POPULATION ESTIMATES 8
Statewide 8
Abundance Results (2026), PAC-Scale 11

SUMMARY AND CONCLUSIONS 37
References 40

APPENDIX I – LONG-TERM POPULATION TRENDS BY PAC 42
Baker PAC 45
Beatys PAC 46
Brothers PAC 47
Bully Creek PAC 48
Burns PAC 49
Cow Lakes PAC 50
Cow Valley PAC 51
Crowley PAC 52
Diablo PAC 53
Drewsey PAC 54
Dry Valley – Jack Mountain PAC 55
Juniper Mountain PAC 56
Louse Canyon PAC 57
North Wagontire PAC 58
Paulina PAC 59
Pueblos PAC 60
Saddle Butte PAC 61
Sheepshead PAC 62
Soldier Creek PAC 63
Steens PAC 64
Trout Creeks PAC 65
Tucker Hill PAC 66
Warner PAC 67
Areas outside of PACs 68

APPENDIX II – 2026 ODFW ADOPT-A-LEK PROGRAM REPORT 69
Summary..... 69
2026 Volunteer Statistics..... 71
Gallery of Images..... 72

APPENDIX III – 2026 AERIAL SURVEY SUMMARY.....75
Aerial Lek Searches Overview..... 75
2026 Aerial Survey..... 75
2025 Aerial Survey..... 75
2024 Aerial Survey..... 76
2023 Aerial Survey..... 76
2022 Aerial Survey..... 76
2021 Aerial Survey..... 77

APPENDIX IV – 2026 SAGE-GROUSE WING-BEE REPORT (2025 HUNTING SEASON DATA).....79
Executive Summary..... 79
Overview..... 79
Age and Sex Composition..... 83
Nest Success and Production..... 88
Hatching Chronology..... 93
Annual Turnover..... 98
Conclusions..... 100
References..... 102

APPENDIX V – WILDFIRES WITHIN SAGE-GROUSE CORE AND LOW-DENSITY HABITATS, JULY–SEPTEMBER 2026.....103

LIST OF TABLES

PAGE

TABLE 1. DEFINITIONS OF ODFW'S SAGE-GROUSE LEK CONSERVATION STATUSES, 2026.....5
TABLE 2. ESTIMATED SAGE-GROUSE ABUNDANCE IN 2026 AND PERCENT OF THE SPRING BREEDING SAGE-GROUSE POPULATION (2026) WITHIN EACH OF OREGON'S PRIORITY AREAS FOR CONSERVATION (PACS). 12

APPENDIX 1.
TABLE A1. 1. SAGE-GROUSE POPULATION TRENDS WITHIN EACH OF OREGON'S SAGE-GROUSE PRIORITY AREAS FOR CONSERVATION (PACS), 1980–2025. 44

APPENDIX 4.
TABLE A4. 1. SAGE-GROUSE HUNTING SEASON DATES, LENGTHS, DAILY AND SEASON BAG LIMITS, AND PERMITS AUTHORIZED, OREGON, 1993–2025. 80
TABLE A4. 2. OREGON WILDLIFE MANAGEMENT UNITS OR SUB-UNITS WITH PERMITTED SAGE-GROUSE HARVEST, 2025. 83
TABLE A4. 3. SEX COMPOSITION BY AGE CLASS, AND AGE COMPOSITION OF HARVESTED SAGE-GROUSE, ALL WILDLIFE MANAGEMENT UNITS OPEN TO HARVEST, OREGON, 1993–2025. 85
TABLE A4. 4. SEX COMPOSITION BY AGE AND AGE COMPOSITION OF HARVESTED SAGE-GROUSE WITHIN WILDLIFE MANAGEMENT UNITS WITH POTENTIAL SAGE-GROUSE HARVEST, OREGON, 2025. TOTAL BY PERCENT IN EACH AGE CLASS REPRESENTS THE OVERALL PROPORTION OF THE GIVEN AGE CLASS IN THE HARVEST. 86
TABLE A4. 5. SAGE-GROUSE PRODUCTION DATA AS DETERMINED FROM HUNTER-HARVESTED WINGS, OREGON, 1982–1984, 1989–1992, 1993–2024, AND 2025. DATA IS DIVIDED INTO THESE PERIODS DUE TO THE SAGE-GROUSE HARVEST CLOSURE DURING 1985–1988, AND IMPLEMENTATION OF REVISED WING ANALYSIS METHODOLOGY IN 1993 87
TABLE A4. 6. SAGE-GROUSE NESTING SUCCESS AS INDICATED BY RETENTION OF AT LEAST PRIMARY FEATHER P9, ALL WILDLIFE MANAGEMENT UNITS WITH SAGE-GROUSE HARVEST, OREGON, 1993–2025. 89
TABLE A4. 7. SAGE-GROUSE NEST SUCCESS AS INDICATED BY RETENTION OF AT LEAST PRIMARY FEATHER P9, AND PRODUCTION RATES, ALL WMUS WITH SAGE-GROUSE HARVEST, OREGON, 2025. 91
TABLE A4. 8. ESTIMATED HATCH DATES FOR JUVENILE SAGE-GROUSE (% OF TOTAL) FROM HUNTER-HARVESTED WINGS, OREGON, 1993–2025. 94
TABLE A4. 9. ESTIMATED HATCH DATES, FROM HUNTER-HARVESTED WINGS, FOR JUVENILE SAGE-GROUSE IN OREGON, 2025. 95
TABLE A4. 10. ESTIMATED ANNUAL TURNOVER (%) OF ADULT SAGE-GROUSE, ASSUMING POPULATION STABILITY, OREGON, 1993–2025. 99
TABLE A4. 11. ESTIMATED FALL SAGE-GROUSE POPULATION, MAXIMUM ALLOWABLE HARVEST, HUNTER STATISTICS, EXPECTED HARVEST, AND PERMIT ALLOCATION IN OREGON WILDLIFE MANAGEMENT UNITS (WMUS) WHERE SAGE-GROUSE HARVEST IS PERMITTED, 2025. 102

APPENDIX 5.
TABLE A5. 1. WILDFIRE SUMMARY WITHIN SAGE-GROUSE CORE (PACS) AND LOW-DENSITY HABITAT, 2026. 103

LIST OF FIGURES

PAGE

FIGURE 1. OREGON SAGE-GROUSE PRIORITY AREAS FOR CONSERVATION (PACS), 2026. 3
FIGURE 2. THE EFFECT OF TIME SINCE SUNRISE (PANEL A) AND DATE (PANEL B) ON THE PROBABILITY OF DETECTING MALE SAGE-GROUSE ATTENDING LEKS IN EASTERN OREGON, 2017–2026. 7
FIGURE 3. NUMBER OF SAGE-GROUSE LEKS AND LEK COMPLEXES KNOWN TO EXIST IN OREGON SINCE 1980, AND THE NUMBER OF LEKS AND LEK COMPLEXES SURVEYED EACH YEAR, 1980–2026. 8
FIGURE 4. NUMBER OF SAGE-GROUSE LEK SURVEYS CONDUCTED PER YEAR IN OREGON (BLUE LINE), AND THE AVERAGE NUMBER OF SURVEYS CONDUCTED AT EACH SURVEYED LEK BY YEAR (ORANGE LINE), 1980–2026. 9
FIGURE 5. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN THE STATE OF OREGON, 2017–2026. 10
FIGURE 6. OREGON STATEWIDE SAGE-GROUSE POPULATION ESTIMATES, 1980–2026. 11
FIGURE 7. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN BAKER PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 13
FIGURE 8. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN BEATYS PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 14
FIGURE 9. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN BROTHERS PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 15
FIGURE 10. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN BULLY CREEK PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 16
FIGURE 11. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN BURNS PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 17
FIGURE 12. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN COW LAKES PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 18
FIGURE 13. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN COW VALLEY PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 19
FIGURE 14. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN CROWLEY PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 20
FIGURE 15. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN DIABLO PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 21
FIGURE 16. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN DREWSEY PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 22
FIGURE 17. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN DRY VALLEY – JACK MOUNTAIN PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026.. 23
FIGURE 18. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN JUNIPER MOUNTAIN PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 24
FIGURE 19. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN LOUSE CANYON PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 25
FIGURE 20. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN NORTH WAGONTIRE PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 26
FIGURE 21. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN PAULINA PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 27
FIGURE 22. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN PUEBLOS PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 28
FIGURE 23. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN SADDLE BUTTE PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 29

FIGURE 24. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN SHEEPSHEAD PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 30
FIGURE 25. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN SOLDIER CREEK PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 31
FIGURE 26. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN STEENS PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 32
FIGURE 27. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN TROUT CREEKS PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 33
FIGURE 28. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN TUCKER HILL PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 34
FIGURE 29. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN WARNER PRIORITY AREA FOR CONSERVATION IN THE STATE OF OREGON, 2017–2026. 35
FIGURE 30. *N*-MIXTURE MODEL ESTIMATES OF SAGE-GROUSE ABUNDANCE WITHIN LOW-DENSITY HABITAT AREAS IN THE STATE OF OREGON, 2017–2026. 36

APPENDIX 1.
FIGURE A1. 1. SAGE-GROUSE POPULATION TRENDS IN THE BAKER PAC, 1980–2025. 45
FIGURE A1. 2. SAGE-GROUSE POPULATION TRENDS IN THE BEATYS PAC, 1980–2025. 46
FIGURE A1. 3. SAGE-GROUSE POPULATION TRENDS IN THE BROTHERS PAC, 1980–2025. 47
FIGURE A1. 4. SAGE-GROUSE POPULATION TRENDS IN THE BULLY CREEK PAC, 1980–2025. 48
FIGURE A1. 5. SAGE-GROUSE POPULATION TRENDS IN THE BURNS PAC, 1980–2025. 49
FIGURE A1. 6. SAGE-GROUSE POPULATION TRENDS IN THE COW LAKES PAC, 1980–2025. 50
FIGURE A1. 7. SAGE-GROUSE POPULATION TRENDS IN THE COW VALLEY PAC, 1980–2025. 51
FIGURE A1. 8. SAGE-GROUSE POPULATION TRENDS IN THE CROWLEY PAC, 1980–2025. 52
FIGURE A1. 9. SAGE-GROUSE POPULATION TRENDS IN THE DIABLO PAC, 1980–2025....53
FIGURE A1. 10. SAGE-GROUSE POPULATION TRENDS IN THE DREWSEY PAC, 1980–2025. 54
FIGURE A1. 11. SAGE-GROUSE POPULATION TRENDS IN THE DRY VALLEY – JACK MOUNTAIN PAC, 1980–2025. 55
FIGURE A1. 12. SAGE-GROUSE POPULATION TRENDS IN THE JUNIPER MOUNTAIN PAC, 1980–2025. 56
FIGURE A1. 13. SAGE-GROUSE POPULATION TRENDS IN THE LOUSE CANYON PAC, 1980–2025....57
FIGURE A1. 14. SAGE-GROUSE POPULATION TRENDS IN THE NORTH WAGONTIRE PAC, 1980–2025. 58
FIGURE A1. 15. SAGE-GROUSE POPULATION TRENDS IN THE PAULINA PAC, 1980–2025. 59
FIGURE A1. 16. SAGE-GROUSE POPULATION TRENDS IN THE PUEBLOS PAC, 1980–2025. 60
FIGURE A1. 17. SAGE-GROUSE POPULATION TRENDS IN THE SADDLE BUTTE PAC, 1980–2025. 61
FIGURE A1. 18. SAGE-GROUSE POPULATION TRENDS IN THE SHEEPSHEAD PAC, 1980–2025. 62
FIGURE A1. 19. SAGE-GROUSE POPULATION TRENDS IN THE SOLDIER CREEK PAC, 1980–2025....63
FIGURE A1. 20. SAGE-GROUSE POPULATION TRENDS IN THE STEENS PAC, 1980–2025. 64
FIGURE A1. 21. SAGE-GROUSE POPULATION TRENDS IN THE TROUT CREEKS PAC, 1980–2025. 65
FIGURE A1. 22. SAGE-GROUSE POPULATION TRENDS IN THE TUCKER HILL PAC, 1980–2025....66
FIGURE A1. 23. SAGE-GROUSE POPULATION TRENDS IN THE WARNER PAC, 1980–2025. 67
FIGURE A1. 24. SAGE-GROUSE POPULATION TRENDS IN AREAS OUTSIDE OF OREGON'S PACS, 1980–2025. 68

APPENDIX 3.
FIGURE A3. 1. GREATER SAGE-GROUSE AERIAL LEK SEARCH TRANSECTS IN SOUTHEASTERN OREGON, INCLUDING THE ENTIRE PAULINA PAC AND ADJACENT LOW-DENSITY HABITAT, THE NORTHERN PORTION OF THE BROTHERS PAC, 2026....78

APPENDIX 4.
FIGURE A4. 1. OREGON WILDLIFE MANAGEMENT UNITS WITH PERMITTED GREATER SAGE-GROUSE HUNTING AND THE DISTRIBUTION OF GREATER SAGE-GROUSE IN OREGON, 2025....82

FIGURE A4. 2. NEST SUCCESS, PERCENT JUVENILES IN THE HARVEST, AND CHICKS PER HEN BY WMU WHERE SAGE-GROUSE HARVEST OCCURRED, OREGON, 2025. 84
FIGURE A4. 3. OREGON SAGE-GROUSE PRODUCTION VALUES (CHICKS PER HEN; CPH) AND 33-YEAR AVERAGE (DASHED LINE; 1993–2025) ESTIMATED FROM HUNTER HARVESTED WING ANALYSES, 1993–2025....92
FIGURE A4. 4. ESTIMATED HATCH DATES OF MALE AND FEMALE JUVENILE SAGE-GROUSE (% HATCHED DURING PERIOD), FROM HUNTER-HARVESTED WINGS, OREGON, 2025. 96
FIGURE A4. 5. ESTIMATED HATCH DATES OF MALE AND FEMALE JUVENILE SAGE-GROUSE (CUMULATIVE % HATCHED DURING PERIOD), FROM HUNTER-HARVESTED WINGS, OREGON, 2025. 97

APPENDIX 5.
FIGURE A5. 1. WILDFIRE PERIMETERS IN OREGON SAGE-GROUSE CORE AND LOW-DENSITY HABITAT, 2026. 104
FIGURE A5. 2. WILDFIRE PERIMETERS IN THE BAKER AND COW VALLEY SAGE-GROUSE PACS AND ADJACENT LOW-DENSITY HABITAT, 2026. 105
FIGURE A5. 3. WILDFIRE PERIMETERS IN THE CROWLEY AND DREWSEY SAGE-GROUSE PACS AND ADJACENT LOW-DENSITY HABITAT, 2026. 106
FIGURE A5. 4. WILDFIRE PERIMETERS IN THE SOLDIER CREEK SAGE-GROUSE PAC AND ADJACENT LOW-DENSITY HABITAT, 2026....107
FIGURE A5. 5. WILDFIRE PERIMETERS IN THE STEENS AND TROUT CREEKS PACS AND ADJACENT LOW-DENSITY HABITAT, 2026....108
FIGURE A5. 6. WILDFIRE PERIMETERS IN THE BROTHERS, PAULINA, AND BURNS PACS AND ADJACENT LOW-DENSITY HABITAT, 2026. 109

Executive Summary

During the 2026 greater sage-grouse (*Centrocercus urophasianus*) breeding season, 1,635 ground and 63 aerial lek surveys were conducted at 789 individual lek sites comprising 502 lek complexes. Access to sage-grouse leks was good to excellent in most areas during the 2026 breeding season due to the lack of precipitation and low snowpack. As a result, statewide lek survey effort was among the highest completed in recent years. Of the 728 known occupied or occupied-pending leks in Oregon, 691 (94.9%) occupied or occupied-pending leks were surveyed at least once in 2026. ODFW updated the methodology used to calculate Oregon's sage-grouse population size estimates and trends in 2025 and now uses an *N*-mixture population model which accounts for imperfect detection of males at leks and adjusts for male attendance rates. Results from the 2026 lek surveys indicate the sage-grouse spring breeding population declined by -5.1% between 2025 and 2026, to an estimated 49,332 birds (95% CI: 39,666–62,993 birds), still the second highest estimate recorded in Oregon since 2017. Results from 2026 lek surveys suggest 2025 was the peak in Oregon's current sage-grouse population cycle, and sage-grouse populations may begin trending downward over the next few years. The 2026 population estimate was -6.8% below the adjusted 2003 baseline population estimate of 52,903 birds. Population abundance estimates (2017–2026) were also calculated for each sage-grouse Priority Area for Conservation (PAC) using the *N*-mixture model. Between 2025 and 2026, 10 PACs experienced increasing population trends, while 11 PACs experienced declining trends. Population increases ranged from +0.3% (Warner PAC) to +18.4% (Diablo PAC), with only 3 PACs increasing by more than +10%. Population declines ranged from -0.5% (Drewsey PAC) to -27.8% (Juniper Mountain PAC), with 7 PACs declining by more than -10%. Lastly, ODFW contracted aerial services for lek searches by helicopter in the Paulina PAC, northern Brothers PAC, and adjacent low-density habitat during spring 2026. The aerial survey documented 13 locations where sage-grouse have not previously been known to display. Of these potential new lek locations, 4 leks were confirmed active by a ground observer in 2026 following the aerial survey, 1 lek in the Paulina PAC and 3 leks in the low-density habitat southeast of the Paulina PAC. The remaining potential new lek locations will need to be verified on the ground during future breeding seasons before they can be confirmed as new lek locations and added to the database.

Overview and Spring Population Monitoring Methods

Background on Lek Monitoring Efforts

Counts of male sage-grouse displaying on leks (communal breeding sites) during the spring breeding season have been used to generate indices of sage-grouse population trends since the 1940s (Patterson 1952) and remain the most widely used method to monitor sage-grouse populations across the range of the species in western North America (McCafferey et al. 2016). Monitoring of some sage-grouse leks in Oregon began in the 1940s, with survey efforts in the state beginning to increase consistently after 1980. ODFW adopted a standardized lek survey methodology in 1996, ensuring consistent data quality and allowing data comparison across the state. Lek monitoring effort increased significantly in the 2010s following the USFWS 'warranted but precluded' ESA listing decision for greater sage-grouse and leading up to the 2015 species review. More recently, lek survey effort increased again in 2015, following the establishment of the BLM's Adaptive Management Strategy within the BLM 2015 Greater

SageGrouse Approved Resource Management Plan (US DOI BLM OR/WA 2015). Consistently high survey effort has been enabled by cooperative funding agreements between BLM and ODFW since 2015 which provide financial support for ODFW to hire 4–6 temporary employees to survey leks each spring, focusing on remote areas of Harney, Lake, and Malheur counties, which would otherwise receive relatively low survey effort. The agreements have also provided financial support for ODFW to reimburse volunteers within the Adopt-a-Lek (AAL) Program for their mileage and modest per diem. Lastly, the cooperative agreements have supported aerial lek searches by helicopter and aerial infrared lek counts. Based on ODFW's aerial survey effort to date, systematic searches of core and low-density sage-grouse habitat by helicopter are the most effective way to locate new or previously unknown lekking locations and aerial infrared lek counts are the most effective way to obtain counts of males at known leks which are inaccessible on the ground.

Within previous annual reports (2013–2024), ODFW generated and reported sage-grouse breeding population estimates for each BLM District in sage-grouse range. Following adoption of ODFW's updated Sage-Grouse Conservation Assessment and Strategy in 2025, reporting of spring population estimates transitioned from BLM Districts to Oregon's Sage-Grouse Priority Areas for Conservation (PACs); PACs are 'core' sage-grouse habitats which have been geographically divided to represent biologically significant management units for Oregon's sage-grouse populations (Figure 1). Like in 2025, survey effort and population trends in sage-grouse abundance will be reported at the PAC-scale in this 2026 Oregon Greater Sage-Grouse Population Monitoring Report, and in subsequent annual population monitoring reports going forward.

Lek Monitoring Methods

ODFW's sage-grouse lek monitoring guidelines were updated in the 2025 version of the Oregon Sage-Grouse Conservation Assessment and Strategy (CAAS; Cline et al. 2025). Individual leks are those locations where two or more male sage-grouse congregate to perform their strutting display during at least two breeding seasons within a 10-year period. Lek sites must meet this requirement to be added to Oregon's centralized sage-grouse lek database. Once a lek location has been confirmed with two or more displaying males for two years, ODFW requires only one or more displaying males present at the lek location within a 10-year period for the lek to be considered 'occupied'. In addition to individual lek locations, ODFW identifies lek complexes as those situations where two or more individual leks are closely associated (e.g., majority of males may display at any of the known lek locations within a complex during a given breeding season or across multiple breeding seasons). This association of multiple individual leks can be identified in the field by lek observers, using data from GPS-marked males, or assumed based on geographic proximity. Typically, if two or more individual leks are within 1.6 km (1 mi) of the next closest known lek, these leks are grouped and considered a single lek complex. Importantly, all individual leks within a lek complex must be surveyed on the same morning to avoid biases associated with the intra-season movements of males within a complex.

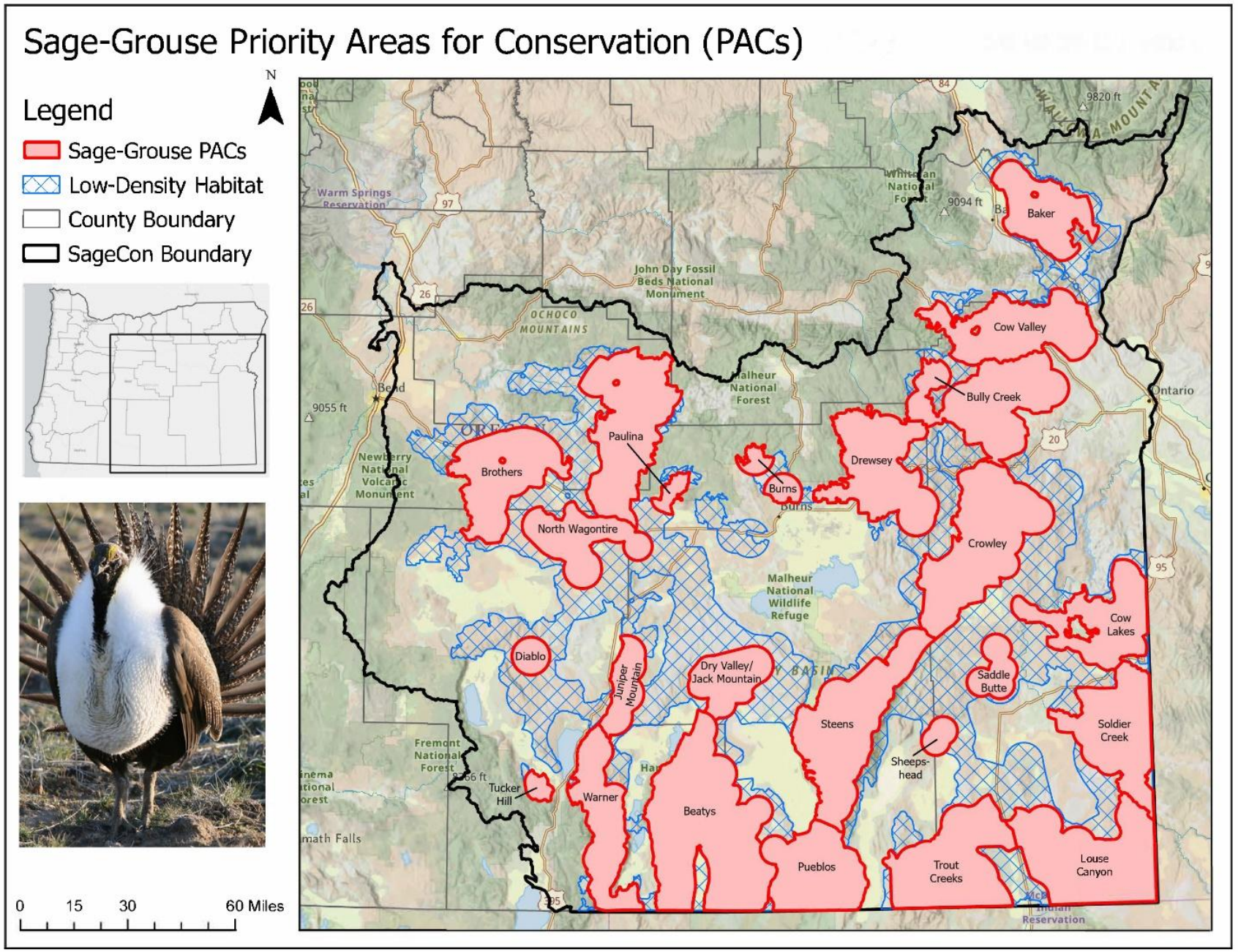


Figure 1. Oregon Sage-Grouse Priority Areas for Conservation (PACs), 2026.

Sage-grouse leks and lek complexes in southeastern Oregon are monitored between 15 March and 30 April, annually, to obtain counts of breeding male sage-grouse. In a collaborative effort, biologists with ODFW, BLM, USFWS, Burns Paiute Tribe, and Oregon State University, as well as volunteers enrolled in the ODFW Adopt-a-Lek Program (Appendix II), visit leks each spring to count all male and female sage-grouse visible on a lek. Due to variability in male lek attendance throughout the breeding season, a subset of lek complexes is counted up to 3 times per season, with individual complex counts separated by at least 7 days.

Lek counts are used to assess sage-grouse population size and trends; the following protocol must be followed to ensure unbiased estimates:

- Male sage-grouse begin attending leks in early March and often continue through early May. Lek counts should be conducted only between 15 March–30 April each year to coincide with peak female attendance.
- Lek counts must be conducted only from 30 minutes before sunrise to 2 hours after sunrise. Lek counts conducted outside of this window are not included in the data analyses to estimate Oregon's annual sage-grouse abundance (Appendix 2.). Detection probability of males declines significantly beyond 45 minutes post-sunrise, so whenever possible, lek surveys should be completed during this timeframe.
- Lek counts should be conducted during mornings with clear to partly cloudy skies, little to no wind, and no precipitation. Lek counts should not be conducted if weather conditions (i.e., wind gusts >15 mph (24 km/h), rainy or snowy conditions) or disturbance (i.e., humans, livestock, predators, other wildlife, etc.) precludes normal display activities.
- For unbiased estimates of population size and trends, a minimum of 50% of the 'occupied' or 'occupied-pending' lek complexes (see below for definitions) within a geographic scale of interest (i.e., PAC, WMU, BLM District, statewide, etc.) should be counted at least 2 times, annually. Lek complexes should be counted at 7–14-day intervals. If a geographic scale of interest contains <10 active or active pending leks, a minimum of 80% of these leks should be counted at least once annually.
- All known 'occupied' or 'occupied-pending' lek complexes on accessible public or private lands should be surveyed a minimum of every 3 years.
- All known 'unoccupied' or 'unoccupied-pending' lek complexes on accessible public or private lands should be surveyed a minimum of every 6 years, ideally during the peak of a population cycle not during the trough of a population cycle.

Ground Surveys

Sage-grouse lek counts should primarily be conducted from the ground when the lek location is accessible. Ground surveys should be conducted by a trained observer viewing the lek through a spotting scope or binoculars from a concealed location, generally >200 m (>656 ft) from the lek to avoid disturbing the sage-grouse. The observer should record survey information (i.e., lek identifier and name, date, time, weather conditions) at the beginning of the survey; data may be recorded electronically or on paper datasheets in the field. The observer should count the sage-grouse on the lek from right to left, or left to right, recording the number of males, females, and sage-grouse of unknown sex, and report each separately. The observer should survey each lek

until the maximum male count recorded has remained the same for two or more consecutive counts, and for a minimum of 15 minutes.

Presence-Absence Checks

Presence-absence sage-grouse lek checks report lek activity when a lek count cannot be obtained, documenting the lek status as active/detected or not detected during a given breeding season. For example, if an observer visits a known lek location outside of the dawn lek count timeframe or when weather conditions preclude a lek count and the observer detects male sage-grouse at the lek, this lek may be active during the given breeding season and an observer should return on a subsequent morning to conduct a lek count. Additional signs of activity include documentation of fresh sage-grouse droppings, feathers, or tracks. Importantly, if sage-grouse or sage-grouse sign are not observed at a known lek when the lek is visited outside of the lek count timeframe or viewed under conditions that preclude a lek count, the lek should not be reported as 'inactive' during the given breeding season. Rather, the observer should report that neither sage-grouse nor sage-grouse sign were detected during the presence-absence lek check. Although presence-absence checks for activity at sage-grouse leks may provide some useful information (e.g., prioritization for subsequent lek count), the structure of Oregon's centralized sage-grouse lek database precludes the utility of presence-absence checks. Oregon tracks annual lek activity status based on lek counts and does not incorporate presence-absence checks into annual reporting of population status or trend at any geographic scale. Presence-absence lek checks should be collected opportunistically and reported but should not be prioritized over lek counts.

Table 1. Definitions of ODFW's Sage-Grouse Lek Conservation Statuses, 2026.

Lek Status	10-year survey period	11–20-year period	21–30-year period
Occupied	1+ males counted during 2+ surveys		
Occupied-Pending	1+ males counted during 1 survey		
	No surveys conducted	1+ males counted during the most recent survey	
Unoccupied-Pending	Only 1 survey with 0 males observed	**And** 1+ males counted during 1+ surveys	
	No surveys conducted	**And** 1+ males counted during 1+ surveys	
	No surveys conducted	**And** no surveys conducted	**And** 1+ males counted during 1+ surveys
Unoccupied	0 males counted during 2+ surveys	**And** 1+ males counted during 1+ surveys	
Historic	0 males counted during 1+ surveys		
	0 males recorded within the last 30 years		

Lek Data Analyses

Previous versions of the annual Oregon Greater Sage-Grouse Population Monitoring Report (2011–2024) presented Oregon's sage-grouse population size estimates and population trends obtained from the breeding population analysis described in Hagen (2011). This methodology was updated in 2025 when ODFW contracted with USGS to develop an updated sage-grouse population model (*N*-Mixture model) for Oregon; see ODFW CAAS (Cline et al. 2025) Appendix 2: Population Analysis Methodology for the full report.

The updated model accounts for imperfect detection of male sage-grouse attending leks and provides unbiased estimates of sage-grouse abundance at large (Oregon range-wide) and smaller (PAC) spatial scales. Although the sage-grouse population trend estimates from the two models are similar, point estimates of population size are different. Three key differences between the previous and new population models explain these discrepancies:

1) Oregon's previous population model did not account for the specific variables influencing detection of sage-grouse during a given survey (i.e., time since sunrise; Figure 2A), within a survey season (i.e., Julian date; Figure 2B), or the interannual variation in detection probability among years, each of which the new model estimates and incorporates. Without accounting for variability in detection probability of males attending known leks, the previous model functioned as an index of minimum population size, where the new model estimates true abundance of sage-grouse.

2) The new population model incorporates variability in male attendance to leks within a breeding season to account for the 'non-lek mating' cohort, which the previous population model did not consider. Within the new model, the age-weighted average male lek attendance rate was defined as 0.58 (95% CI = 0.46–0.71; Wann et al. 2019).

3) The new model adjusts for presently unknown leks on the landscape by considering those previously unknown leks added to the database annually, 1941–2026. There have been over 100 new leks discovered in Oregon and added to the statewide lek database over the past 10 years. Under ODFW's previous sage-grouse population model, new leks were mostly unaccounted for, resulting in large apparent population increases following their addition to the lek database.

The *N*-Mixture model requires repeated counts (e.g., multiple surveys per season) to provide unbiased estimates of sage-grouse abundance, and the years from 2017–present have a sufficient sample size of repeat surveys to run the model (Figure 5). To estimate the statewide sage-grouse population abundance during the period from 1980–2016, we fit a general linear model using the 2017–present population estimates from the new model and the previous model [New Model Estimates ~ 1 + Previous Model Estimates; $p = 0.011$, r-sq. = 0.52]. We used the results of this general linear model to predict the updated statewide population abundance during 1980–2016 from the population estimates of the previous model during this timeframe (Figure 6).

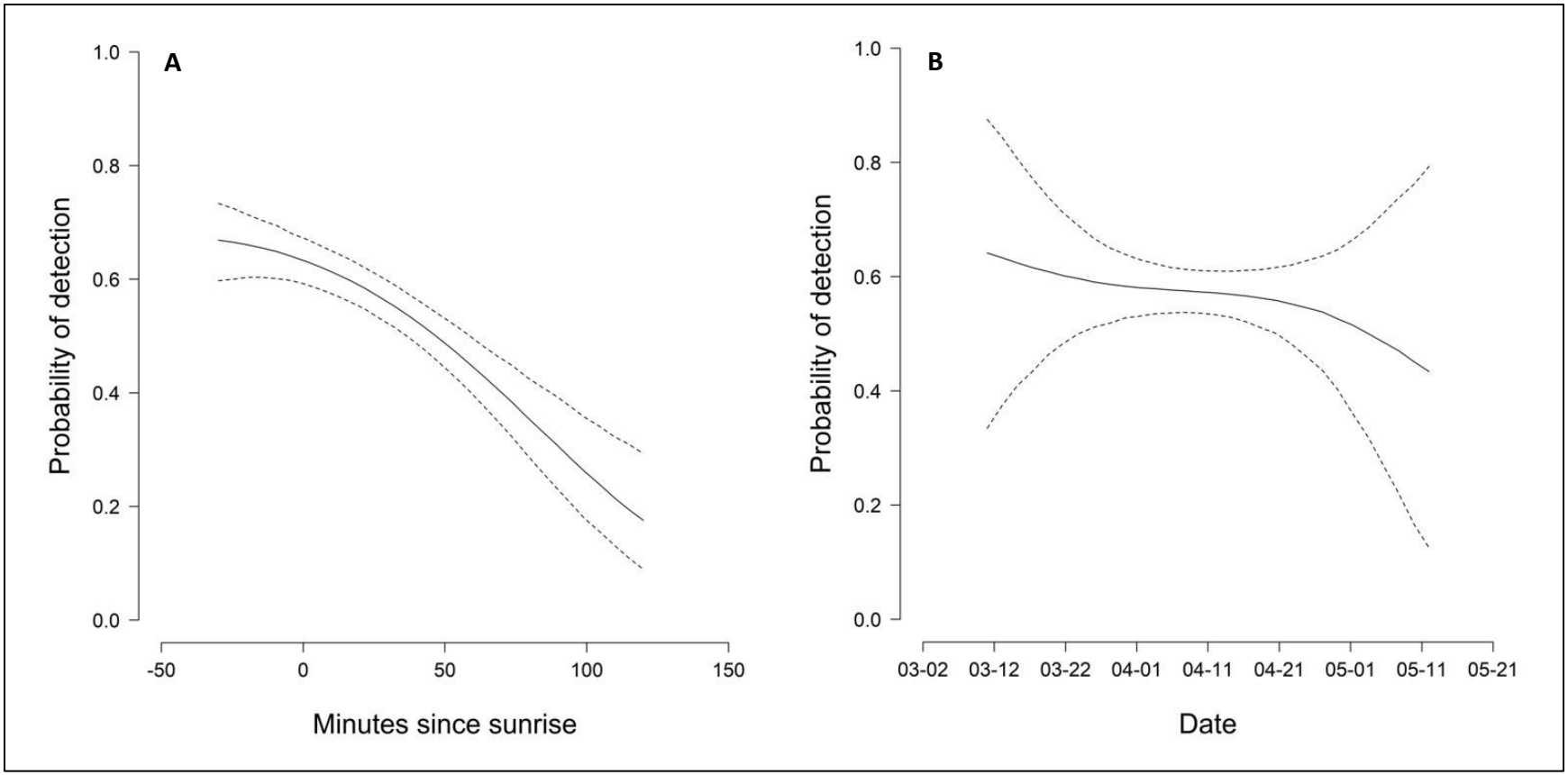


Figure 2. The effect of time since sunrise (Panel A) and date (Panel B) on the probability of detecting male sage-grouse attending leks in eastern Oregon, 2017–2026.

Lek Monitoring Effort and Population Estimates

Statewide

Access to sage-grouse lek sites was good to excellent in most areas in 2026. Even high elevation lek sites (>6,000 ft) were able to be surveyed in late March this season. Typically, many of these high elevation leks cannot be surveyed until late April, and some years (e.g., heavy snowpack) cannot be reached due to access difficulties. ODFW and partners completed 1,635 ground surveys and 63 aerial counts during mid-March through April 2026. Surveys were conducted at 789 leks comprising 502 lek complexes. Of the 1,277 individual leks, and 860 lek complexes known to exist or have existed in the state, 61.8% and 58.4%, respectively, were surveyed during 2026 (Figure 3). On average, each lek was surveyed 2.15 times. Statewide lek survey effort during the 2026 breeding season was similar to the 10-year average (2016–2025) for the proportion of known leks surveyed (10-*yr*. $\bar{x}$ = 62.4%) and the proportion of known complexes surveyed (10-*yr*. $\bar{x}$ = 60.4%). However, this metric is becoming outdated as a greater number of known leks continue to become 'unoccupied' or 'historic'. Of the 728 known occupied or occupied-pending leks in Oregon, 691 (94.9%) occupied or occupied-pending leks were surveyed at least once in 2026, which is among the highest completed in recent years.

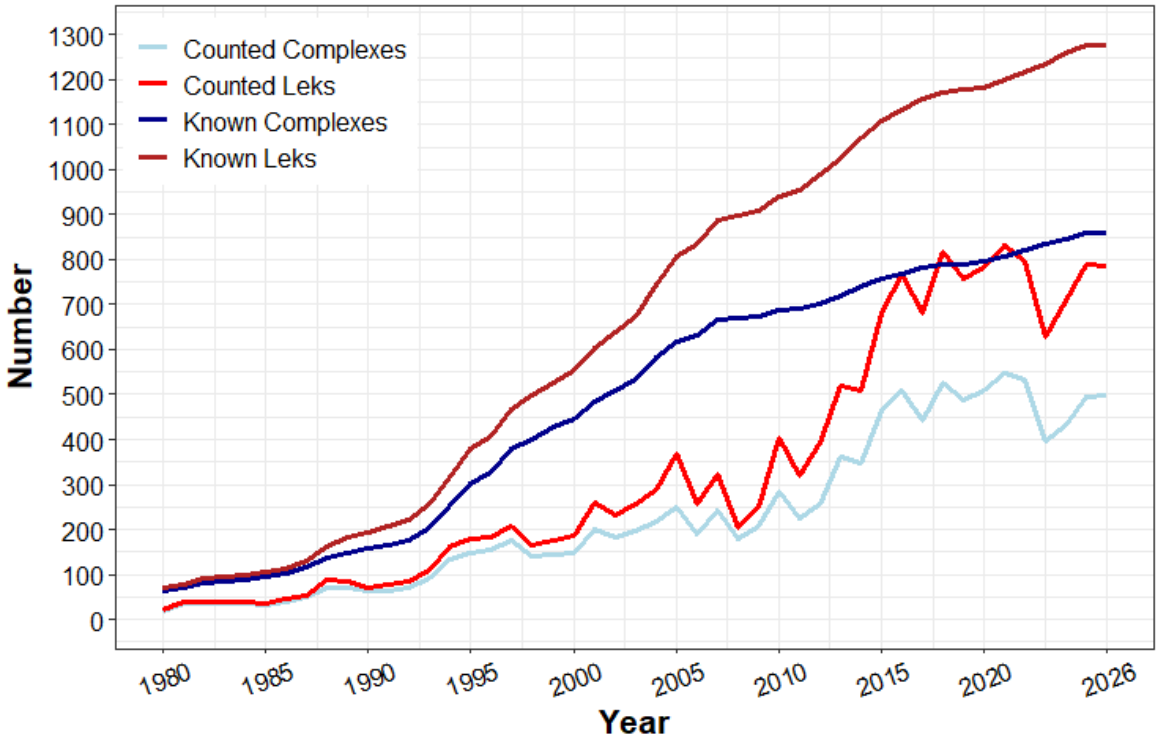


Figure 3. Number of sage-grouse leks and lek complexes known to exist in Oregon since 1980, and the number of leks and lek complexes surveyed each year, 1980–2026.

Dedicated aerial surveys (Appendix III) and incidental observations during ground surveys help expand knowledge of sage-grouse distribution in Oregon. ODFW contracted aerial services for lek searches by helicopter in the Paulina PAC, northern Brothers PAC, and adjacent low-density

habitat during spring 2026. The aerial survey documented 13 locations where sage-grouse have not previously been known to display. Of these potential new lek locations, 4 leks were confirmed active by a ground observer in 2026 following the aerial survey, 1 lek in the Paulina PAC and 3 leks in the low-density habitat southeast of the Paulina PAC. The remaining potential new lek locations will need to be verified on the ground during the next several breeding seasons before they can be confirmed as new lek locations and added to the database. During the 2026 lek survey season, nine previously unknown leks discovered during the 2025 aerial surveys were confirmed active and added to the database, eight leks in the Steens PAC and one lek in the Sheepshead PAC. Additionally, two previously unknown leks discovered during the 2022 aerial survey were confirmed on the ground in the Louse Canyon PAC during the 2026 lek survey season and added to the statewide lek database. There are two potential new lek locations in the Sheepshead PAC which still need to be verified on the ground during the upcoming survey seasons, and there are several additional potential new lek locations in the Steens PAC which still need to be confirmed on the ground before they can be added to the statewide lek database. Lastly, several previously unknown leks were discovered and confirmed active by lek observers on the ground; one new lek in the Baker PAC (ODFW staff), two new leks in the Drewsey PAC (Burns District BLM staff), two new leks in the low-density habitat west of Saddle Butte (Adopt-a-Lek volunteers), one new lek in the Louse Canyon PAC (ODFW staff), one new lek in the Crowley PAC (USFWS staff), and one new lek in the Bully Creek PAC (ODFW staff). Each of these previously unknown leks were added to the database following ground verification in 2026.

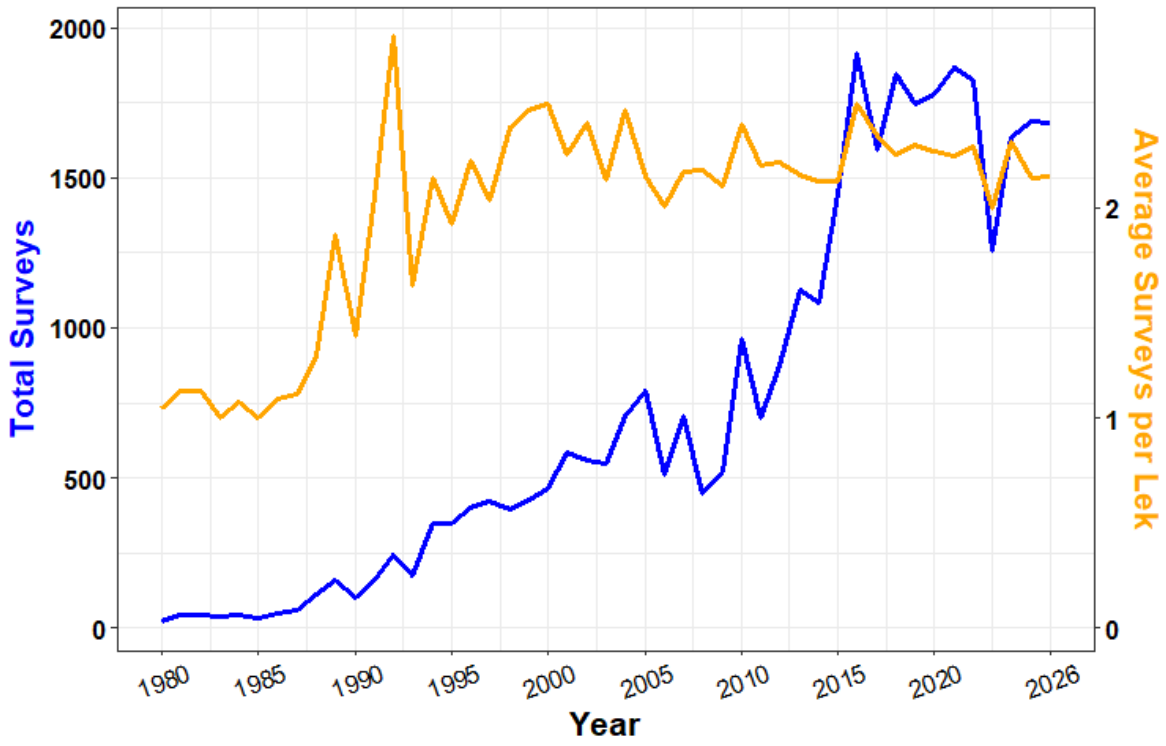


Figure 4. Number of sage-grouse lek surveys conducted per year in Oregon (blue line), and the average number of surveys conducted at each surveyed lek by year (orange line), 1980–2026.

The estimated spring greater sage-grouse population in Oregon during 2026 was 49,332 birds (95% CI: 39,666–62,993 birds), a -5.1% decline from 2025 (2025 estimate = 51,856 birds [95% CI: 41,835–66,053 individuals]; Figure 5). The 2026 population estimate was -6.8% below the adjusted 2003 baseline population estimate of 52,903 sage-grouse. The statewide population estimate for 2026 is the second highest recorded in Oregon since 2017, which was the most recent peak in Oregon's sage-grouse population cycle. Results from 2026 lek surveys suggest 2025 was the peak in Oregon's current sage-grouse population cycle, and sage-grouse populations may begin trending downward over the next few years. The most recent population nadir (trough) was evident in 2019 when the statewide population was estimated at 34,454 sage-grouse, the lowest statewide estimate during the 47-year period from 1980–2026 (Figure 6). Population trends (i.e., changes in population size) should be interpreted from complete population cycles using the population nadirs (Coates et al. 2021). During the 1980–2026 timeframe, five nadirs exist in Oregon's statewide sage-grouse population cycles, in years 1985, 1996, 2008, 2013, and 2019. Comparing trends for each of these four previous population nadirs to the most recent nadir, Oregon's sage-grouse populations, statewide, have declined by -30.4% (1985–2019), -19.3% (1996–2019), -12.5% (2008–2019), and -14.1% (2013–2019).

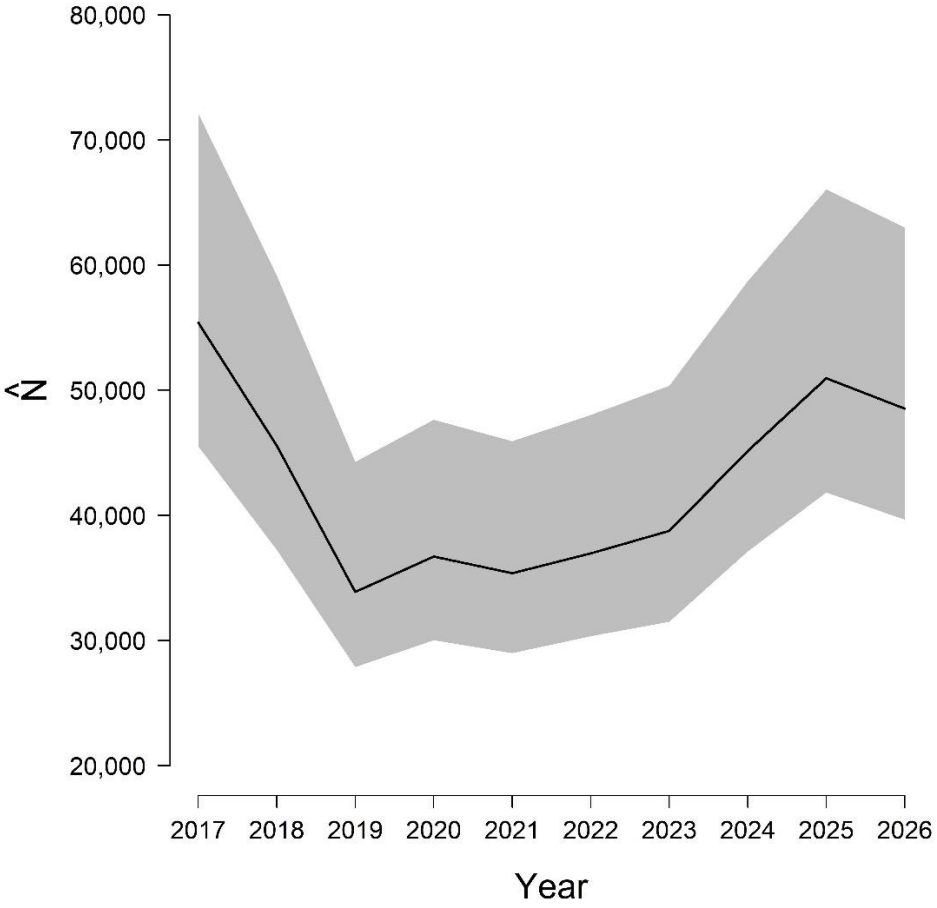


Figure 5. *N*-mixture model estimates of sage-grouse abundance within the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

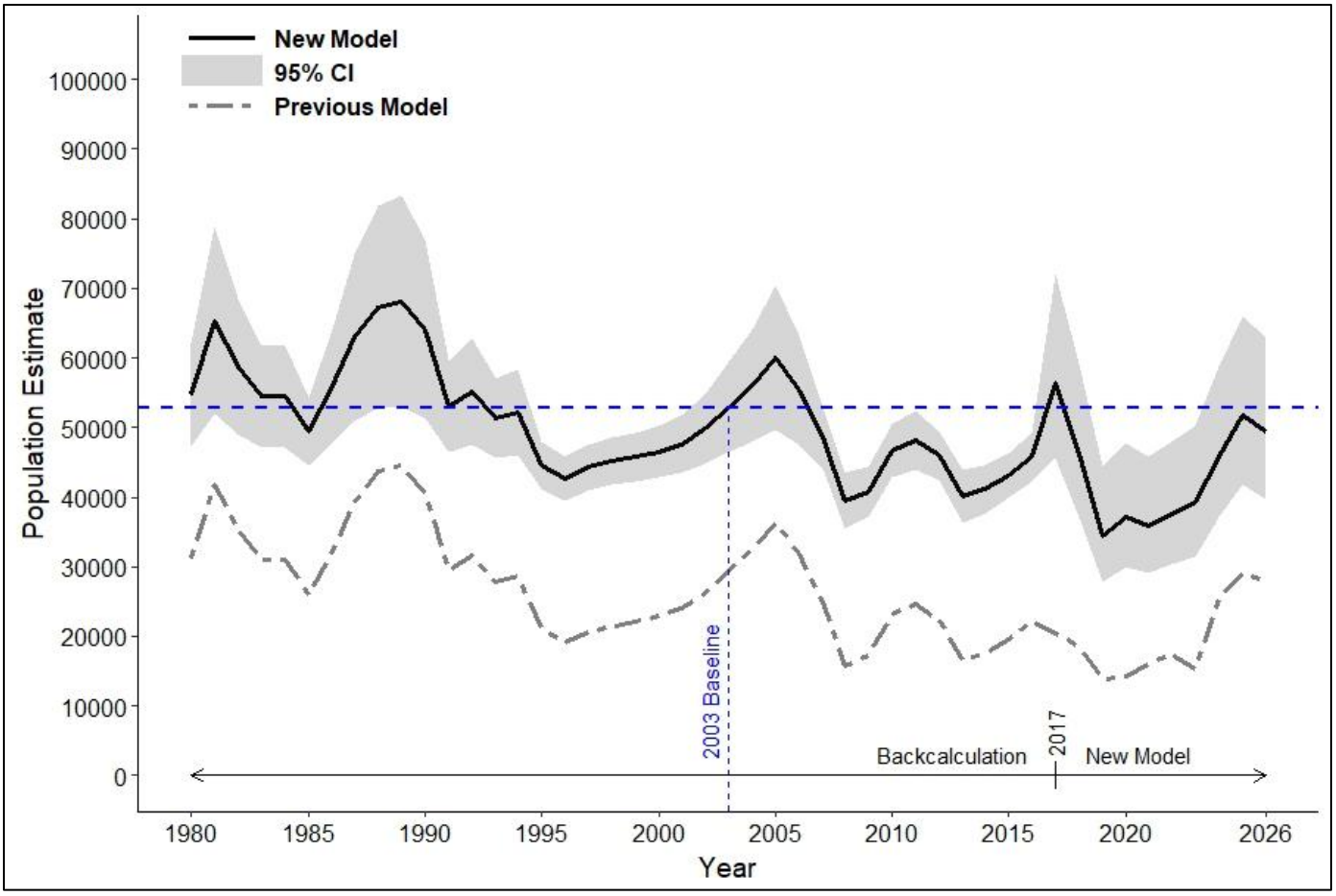


Figure 6. Oregon statewide sage-grouse population estimates, 1980–2026. The solid black line represents the abundance estimates from the new *N*-mixture model, and the dashed gray line represents the population estimates from ODFW's previous model. The population goal is set at the 2003 level, representing the baseline for Oregon's statewide sage-grouse population size.

Abundance Results (2026), PAC-Scale

Habitat management for sage-grouse in Oregon often occurs at the scale of individual Priority Areas for Conservation (PAC), or at even smaller scales within a PAC, so knowing the abundance of sage-grouse within each of Oregon's sage-grouse PACs is important for the management and conservation of the species. Sage-grouse population abundance estimates (2017–2026) from ODFW's new *N*-Mixture model are presented in this section for each PAC. Of Oregon's 23 PACs, 8 PACs make up the majority (>70%) of Oregon's sage-grouse population by abundance: Steens PAC (15.1%), Beatys PAC (11.4%), Louse Canyon PAC (10.3%), Warner PAC (8.4%), Trout Creeks PAC (8.0%), Bully Creek PAC (6.2%), Crowley PAC (6.4%), and Pueblos PAC (6.0%; Table 2). Increasing population trends between 2025 and 2026 were seen in 10 PACs, with decreasing trends in 11 PACs. Population increases ranged from +0.3% (Warner PAC) to +18.4% (Diablo PAC), with only 3 PACs increasing by more than +10%. Population declines ranged from -0.5% (Drewsey PAC) to -27.8% (Juniper Mountain PAC), with 7 PACs declining by more than -10%.

Note, the *N*-Mixture model produces updated estimates of abundance for each year, 2017–present, annually, using all the available lek data during this timeframe. For this reason, it is not appropriate to compare abundance estimates reported in the 2026 ODFW Sage-Grouse Population Report to those estimates reported in the 2025 ODFW Sage-Grouse Population Report, for example. Additionally, estimates of true abundance from the *N*-Mixture model are unavailable at the PAC-scale prior to the year 2017 due to an inadequate sample size of repeat surveys conducted within survey seasons before 2017. However, estimates of relative sage-grouse abundance are available through the USGS Rangewide Population Monitoring Framework (Ver. 4, Coates et al. 2025), detailed in Appendix I.

Table 2. Estimated sage-grouse abundance in 2026 and percent of the spring breeding sage-grouse population (2026) within each of Oregon's Priority Areas for Conservation (PACs).

Priority Area for Conservation (PAC)	Abundance, 2026	Abundance SD[1], 2026	Trend[2] (%), 2026	% of 2026 Population
Baker	508	75.2	7.5	1.0%
Beatys	5,613	762.9	-9.9	11.4%
Brothers	1,617	209.0	7.1	3.3%
Bully Creek	3,069	423.7	-10.7	6.2%
Burns	233	37.1	10.7	0.5%
Cow Lakes	944	134.9	4.1	1.9%
Cow Valley	859	191.9	-18.1	1.7%
Crowley	3,154	409.0	-12.3	6.4%
Diablo	113	22.5	18.5	0.2%
Drewsey	1,808	247.1	-0.5	3.7%
Dry Valley/Jack Mountain	896	133.4	6.1	1.8%
Juniper Mountain	321	110.5	-27.8	0.7%
Louse Canyon	5,090	1,148.9	-7.3	10.3%
North Wagontire	479	64.5	-7.1	1.0%
Paulina	2,428	333.3	11.1	4.9%
Pueblos	2,965	409.9	-10.2	6.0%
Saddle Butte	556	88.4	-11.2	1.1%
Sheepshead	290	80.7	7.4	0.6%
Soldier Creek	1,686	298.8	-12.0	3.4%
Steens	7,460	960.1	1.3	15.1%
Trout Creeks	3,956	554.6	-6.5	8.0%
Tucker Hill	315	58.2	-6.4	0.6%
Warner	4,156	530.7	0.3	8.4%
Low-Density (Non-PAC)	814	182.2	-5.4	1.6%

[1]Standard deviation of the abundance estimate.
[2]Percent change (trend) in estimated abundance between 2025 and 2026.

Baker PAC

The Baker PAC is an area of approximately 115,262 ha (284,815 ac), located mostly within Baker County; a small portion of the PAC falls within Union County. Sixty-three leks are known to exist in the Baker PAC. As of 2026, the conservation statuses of these leks are: 17 occupied, 3 occupied-pending, 3 unoccupied-pending, 18 unoccupied, and 22 historic leks.

During 2026, 75 lek surveys were conducted at 25 leks within the Baker PAC; 20 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Baker PAC was counted 3.0 times. Estimated sage-grouse abundance in the Baker PAC in 2026 was 508 birds (95% CI: 401–682 birds), up +7.5% from the 473 birds estimated in the PAC in 2025 (Figure 7). The Baker PAC population makes up 1.0% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Baker PAC was -21.9% during 2014–2023, the mid-term population trend (2 oscillations) was -78.1% during 2001–2023, and the long-term population trend (4 oscillations) was -74.6% during 1984–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Baker PAC are available in Appendix I (Figure A1.1).

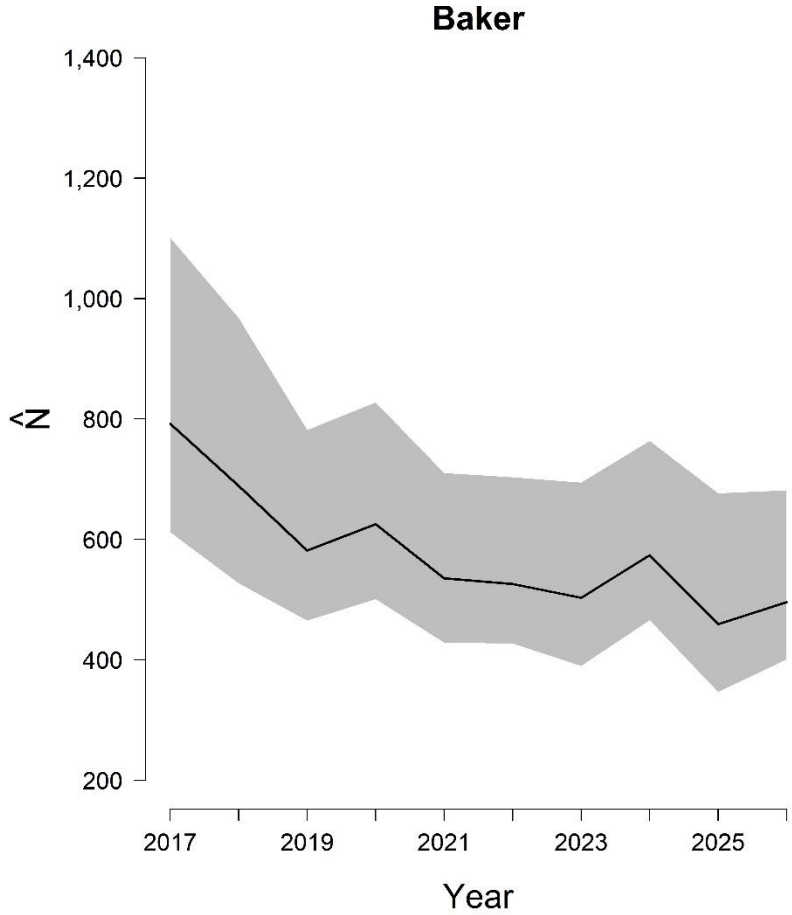


Figure 7. *N*-mixture model estimates of sage-grouse abundance within Baker Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Beatys PAC

The Beatys PAC is an area of approximately 337,541 ha (834,073 ac), located within Lake County and Harney County, and contains 166 known leks. As of 2026, the conservation statuses of these leks are: 90 occupied, 15 occupied-pending, 1 unoccupied-pending, 19 unoccupied, and 41 historic leks.

During 2026, 265 lek surveys were conducted at 108 leks within the Beatys PAC; 105 (99%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Beatys PAC was counted 2.45 times. Estimated sage-grouse abundance in the Beatys PAC in 2026 was 5,613 birds (95% CI: 4,401–7,359 birds), down -9.9% from the 6,227 birds estimated in the PAC in 2025 (Figure 8). The Beatys PAC population makes up 11.4% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Beatys PAC was -23.5% during 2013–2022, the mid-term population trend (2 oscillations) was -74.7% during 2002–2022, and the long-term population trend (4 oscillations) was -63.2% during 1984–2022 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Beatys PAC are available in Appendix I (Figure A1.2).

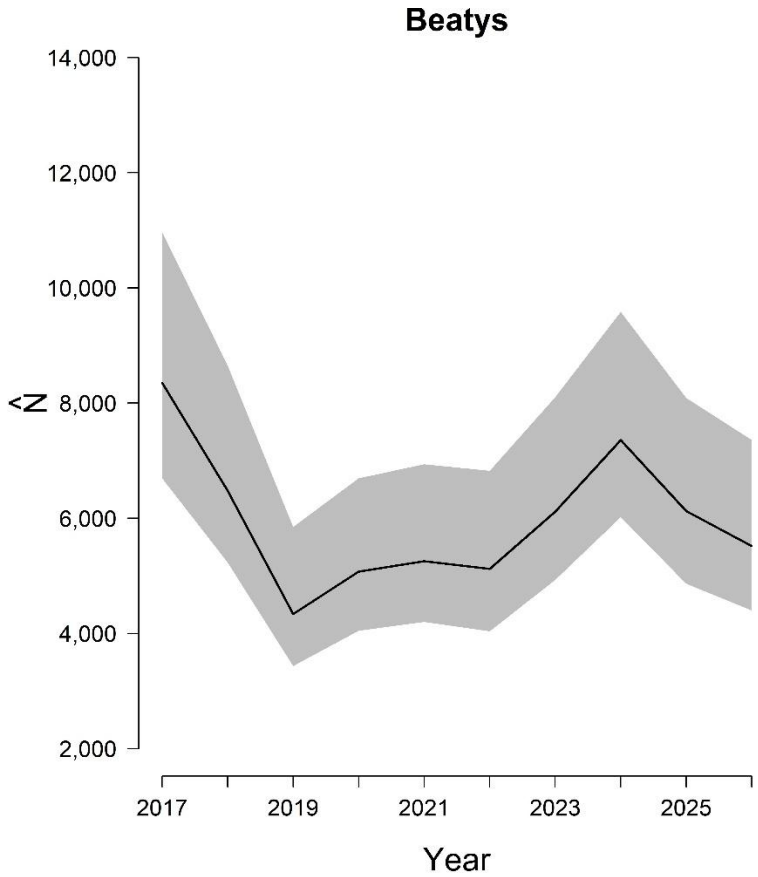


Figure 8. *N*-mixture model estimates of sage-grouse abundance within Beatys Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Brothers PAC

The Brothers PAC is an area of approximately 156,589 ha (386,936 ac), located mostly within Deschutes County; a portion of the PAC falls within Crook County and Lake County. Fifty leks are known to exist in the Brothers PAC. As of 2026, the conservation statuses of these leks are: 30 occupied, 6 occupied-pending, 5 unoccupied, and 9 historic leks.

During 2026, 123 ground surveys and 4 aerial lek surveys were conducted at 43 leks within the Brothers PAC; 34 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Brothers PAC was counted 2.95 times. Estimated sage-grouse abundance in the Brothers PAC in 2026 was 1,617 birds (95% CI: 1,282–2,106 birds), up +7.1% from the 1,509 birds estimated in the PAC in 2025 (Figure 9). The Brothers PAC population makes up 3.3% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Brothers PAC was -56.9% during 2009–2019, the mid-term population trend (2 oscillations) was -37.8% during 2003–2019, and the long-term population trend (4 oscillations) was -76.7% during 1985–2019 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Brothers PAC are available in Appendix I (Figure A1.3).

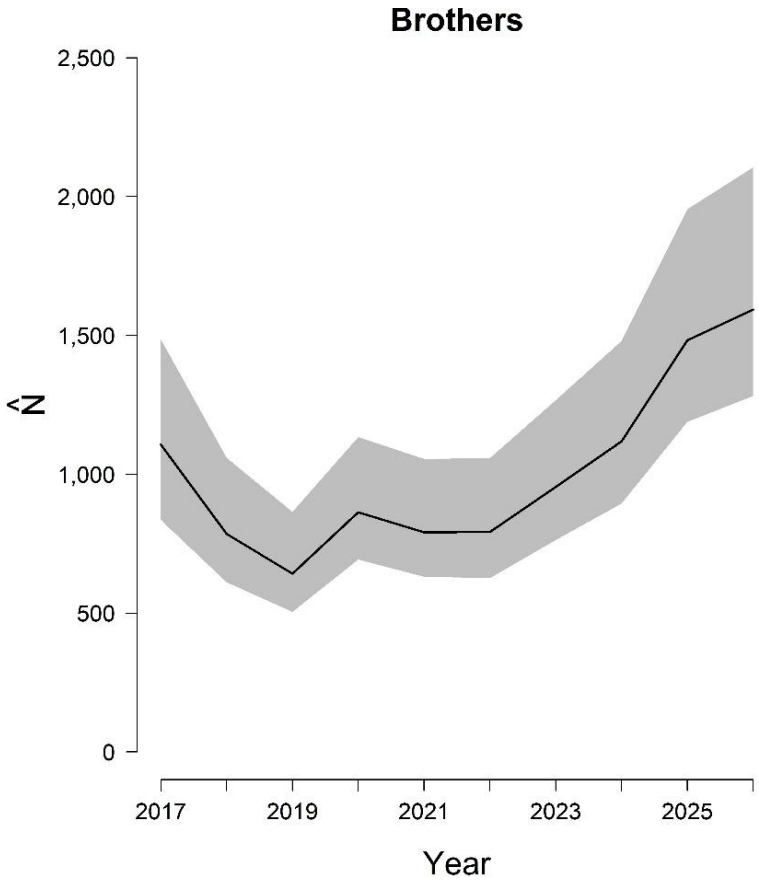


Figure 9. *N*-mixture model estimates of sage-grouse abundance within Brothers Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Bully Creek PAC

The Bully Creek PAC is an area of approximately 201,538 ha (498,006 ac), located mostly within Malheur County; small portions of the PAC fall within Grant County and Harney County. Fifty-nine leks are known to exist in the Bully Creek PAC. As of 2026, the conservation statuses of these leks are: 38 occupied, 4 occupied-pending, 7 unoccupied, and 10 historic leks.

During 2026, 101 lek surveys were conducted at 45 leks within the Bully Creek PAC; 40 (95%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Bully Creek PAC was counted 2.24 times. Estimated sage-grouse abundance in the Bully Creek PAC in 2026 was 3,069 birds (95% CI: 2,401–4,041 birds), down -10.7% from the 3,435 birds estimated in the PAC in 2025 (Figure 10). The Bully Creek PAC population makes up 6.2% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Bully Creek PAC was -55.7% during 2014–2020, the mid-term population trend (3 oscillations) was -37.8% during 2001–2020, and the long-term population trend (5 oscillations) was -1.6% during 1985–2020 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Bully Creek PAC are available in Appendix I (Figure A1.4).

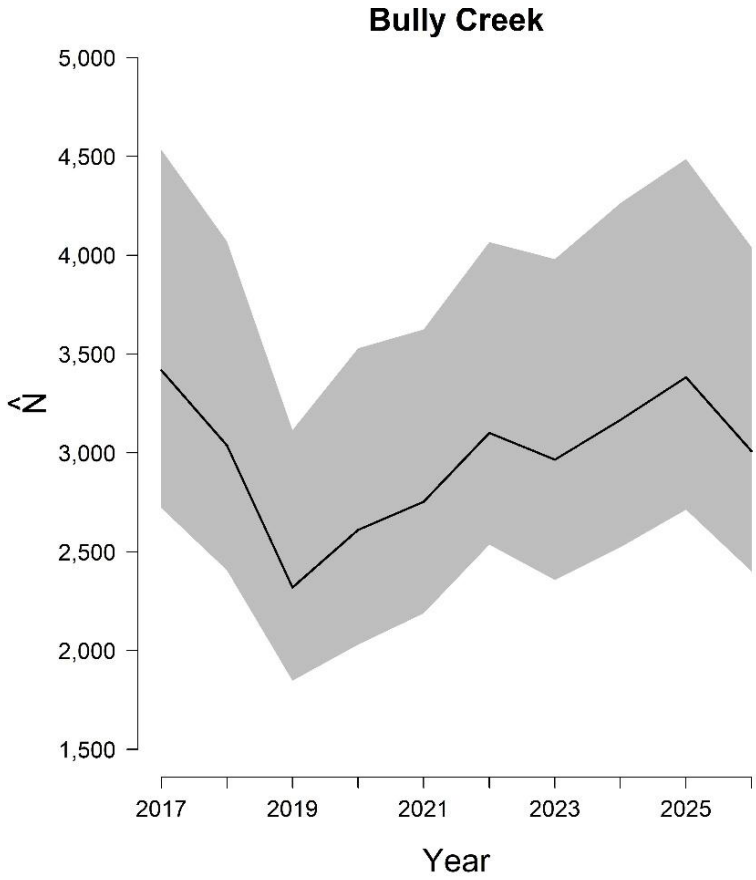


Figure 10. *N*-mixture model estimates of sage-grouse abundance within Bully Creek Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Burns PAC

The Burns PAC is an area of approximately 31,098 ha (76,845 ac), located within Harney County, and contains 5 known leks. As of 2026, the conservation statuses of these leks are: 3 occupied and 2 historic leks.

During 2026, 9 lek surveys were conducted at the 3 occupied leks within the Burns PAC. On average, each surveyed lek in the Burns PAC was counted 3.0 times. Estimated sage-grouse abundance in the Burns PAC in 2026 was 233 birds (95% CI: 176–323 birds), up +10.7% from the 210 birds estimated in the PAC in 2025 (Figure 11). The Burns PAC population makes up 0.5% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Burns PAC was -35.1% during 2014–2021, the mid-term population trend (3 oscillations) was -46.7% during 2001–2021, and the long-term population trend (5 oscillations) was -52.0% during 1985–2021 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Burns PAC are available in Appendix I (Figure A1.5).

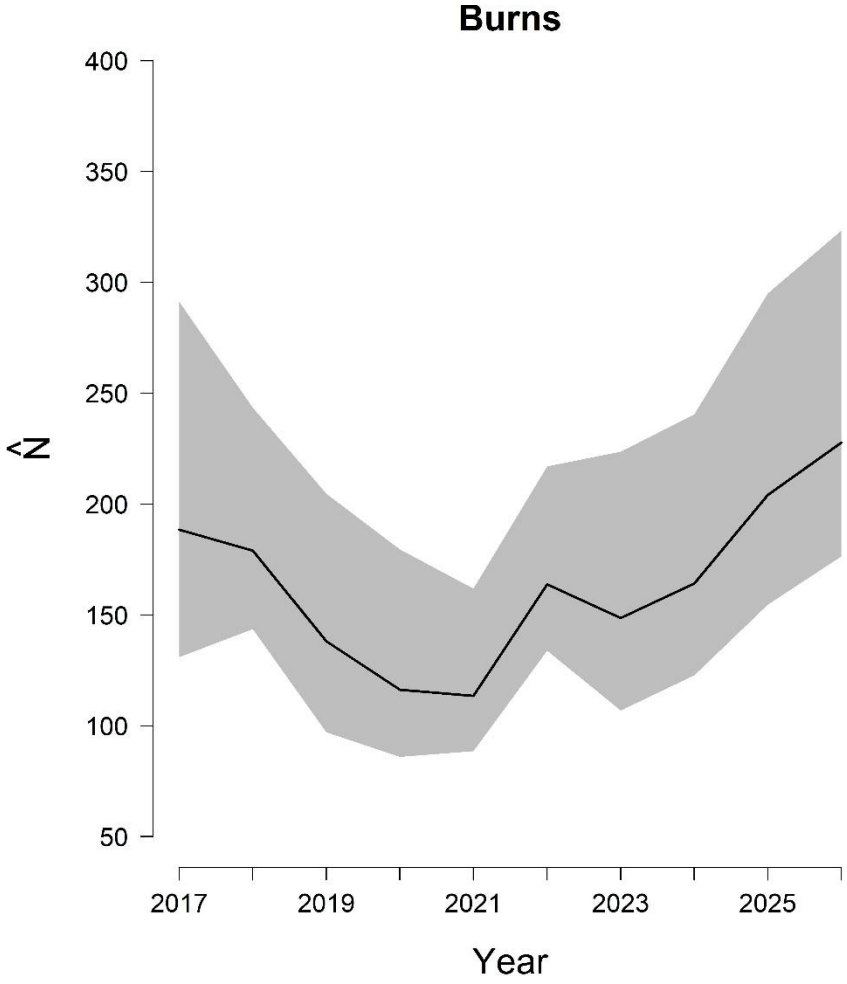


Figure 11. *N*-mixture model estimates of sage-grouse abundance within Burns Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Cow Lakes PAC

The Cow Lakes PAC is an area of approximately 141,890 ha (350,613 ac), located within Malheur County, and contains 63 known leks. As of 2026, the conservation statuses of these leks are: 24 occupied, 7 occupied-pending, 14 unoccupied, and 18 historic leks.

During 2026, 82 lek surveys were conducted at 37 leks within the Cow Lakes PAC; 31 (96.9%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Cow Lakes PAC was counted 2.22 times. Estimated sage-grouse abundance in the Cow Lakes PAC in 2026 was 944 birds (95% CI: 734–1,249 birds), up +4.1% from the 907 birds estimated in the PAC in 2025 (Figure 12). The Cow Lakes PAC population makes up 1.9% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Cow Lakes PAC was -25.6% during 2013–2023, the mid-term population trend (3 oscillations) was -62.0% during 1995–2023, and the long-term population trend (4 oscillations) was -79.0% during 1985–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Cow Lakes PAC are available in Appendix I (Figure A1.6).

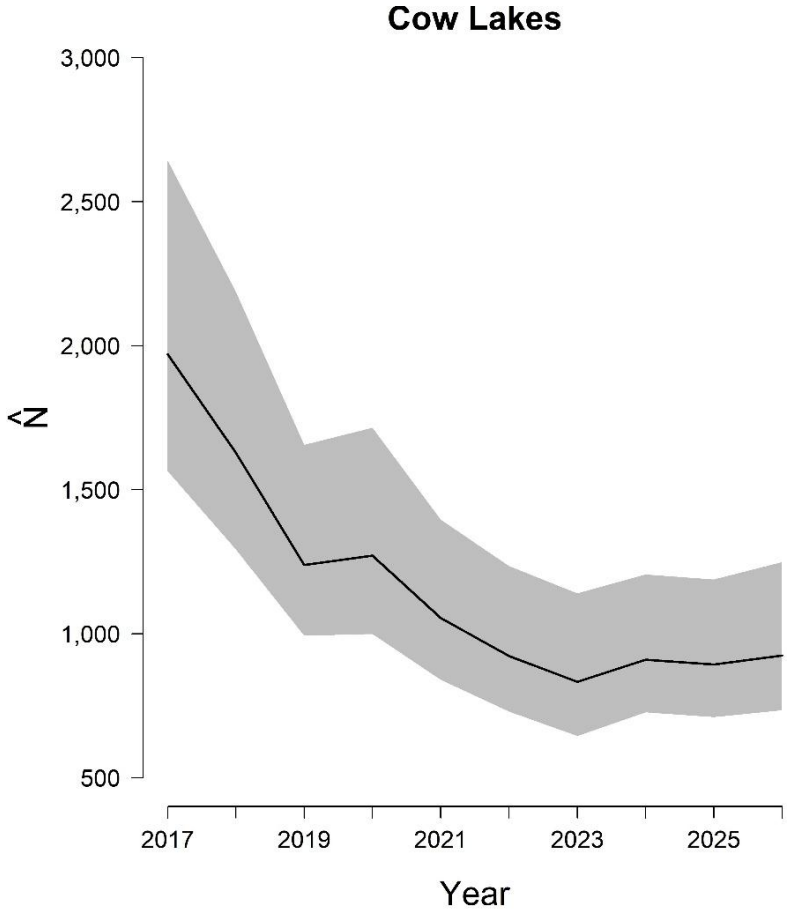


Figure 12. *N*-mixture model estimates of sage-grouse abundance within Cow Lakes Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Cow Valley PAC

The Cow Valley PAC is an area of approximately 164,097 ha (405,489 ac), located within northern Malheur County and southern Baker County, and contains 59 known leks. As of 2026, the conservation statuses of these leks are: 33 occupied, 5 occupied-pending, 7 unoccupied, and 14 historic leks.

During 2026, 69 lek surveys were conducted at 34 leks within the Cow Lakes PAC; 29 (67.4%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Cow Valley PAC was counted 2.29 times. Estimated sage-grouse abundance in the Cow Valley PAC in 2026 was 859 birds (95% CI: 586–1,320 birds), down -18.1% from the 1,050 birds estimated in the PAC in 2025 (Figure 13). The Cow Valley PAC population makes up 1.7% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Cow Valley PAC was -36.7% during 2008–2017, the mid-term population trend (2 oscillations) was -21.4% during 2001–2017, and the long-term population trend (4 oscillations) was +15.2% during 1985–2017 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Cow Valley PAC are available in Appendix I (Figure A1.7).

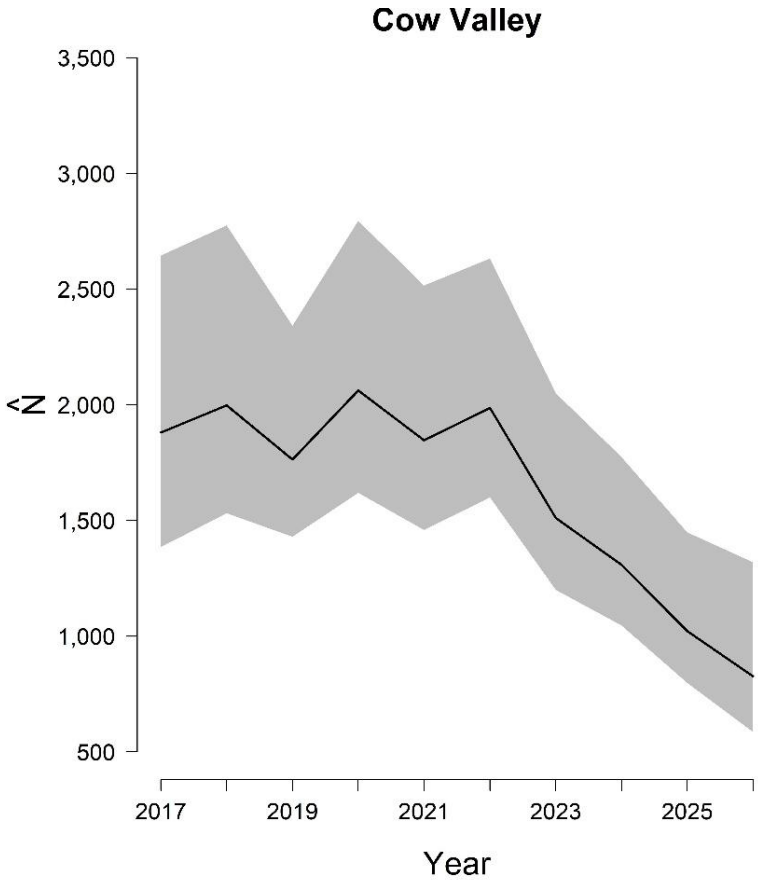


Figure 13. *N*-mixture model estimates of sage-grouse abundance within Cow Valley Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Crowley PAC

The Crowley PAC is an area of approximately 238,168 ha (588,519 ac), located mostly within Malheur County; a small portion of the PAC falls within Harney County. Fifty-four leks are known to exist in the Crowley PAC. As of 2026, the conservation statuses of these leks are: 34 occupied, 4 occupied-pending, 4 unoccupied, and 12 historic leks.

During 2026, 103 lek surveys were conducted at 41 leks within the Crowley PAC; 35 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Crowley PAC was counted 2.51 times. Estimated sage-grouse abundance in the Crowley PAC in 2026 was 3,154 birds (95% CI: 2,491–4,082 birds), down -12.3% from the 3,598 birds estimated in the PAC in 2025 (Figure 14). The Crowley PAC population makes up 6.4% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Crowley PAC was -14.6% during 2013–2023, the mid-term population trend (3 oscillations) was -34.8% during 2002–2023, and the long-term population trend (5 oscillations) was -38.9% during 1984–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Crowley PAC are available in Appendix I (Figure A1.8).

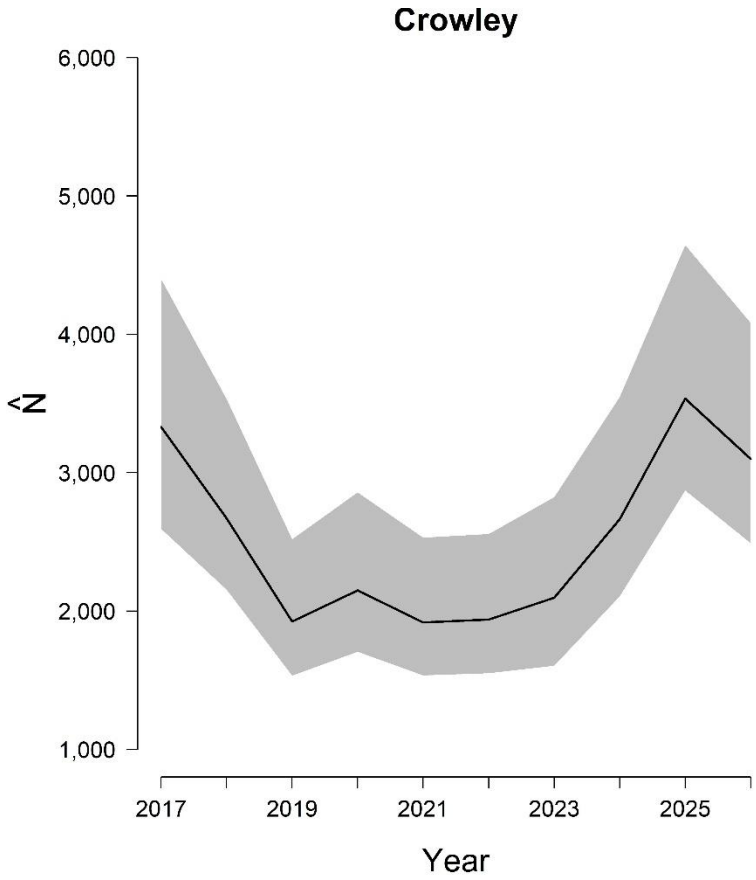


Figure 14. *N*-mixture model estimates of sage-grouse abundance within Crowley Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Diablo PAC

The Diablo PAC is an area of approximately 22,852 (56,469 ac), located within Lake County, and contains 3 known leks. As of 2026, the conservation statuses of these leks are: 1 occupied and 2 historic leks.

During 2026, 2 lek surveys were conducted at the 1 occupied lek within the Diablo PAC. Estimated sage-grouse abundance in the Diablo PAC in 2026 was 113 birds (95% CI: 88–164 birds), up +18.5% from the 96 birds estimated in the PAC in 2025 (Figure 15). The Diablo PAC population makes up 0.2% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Diablo PAC was -48.0% during 2013–2023, the mid-term population trend (3 oscillations) was -41.9% during 2002–2023, and the long-term population trend (5 oscillations) was -65.8% during 1985–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Diablo PAC are available in Appendix I (Figure A1.9).

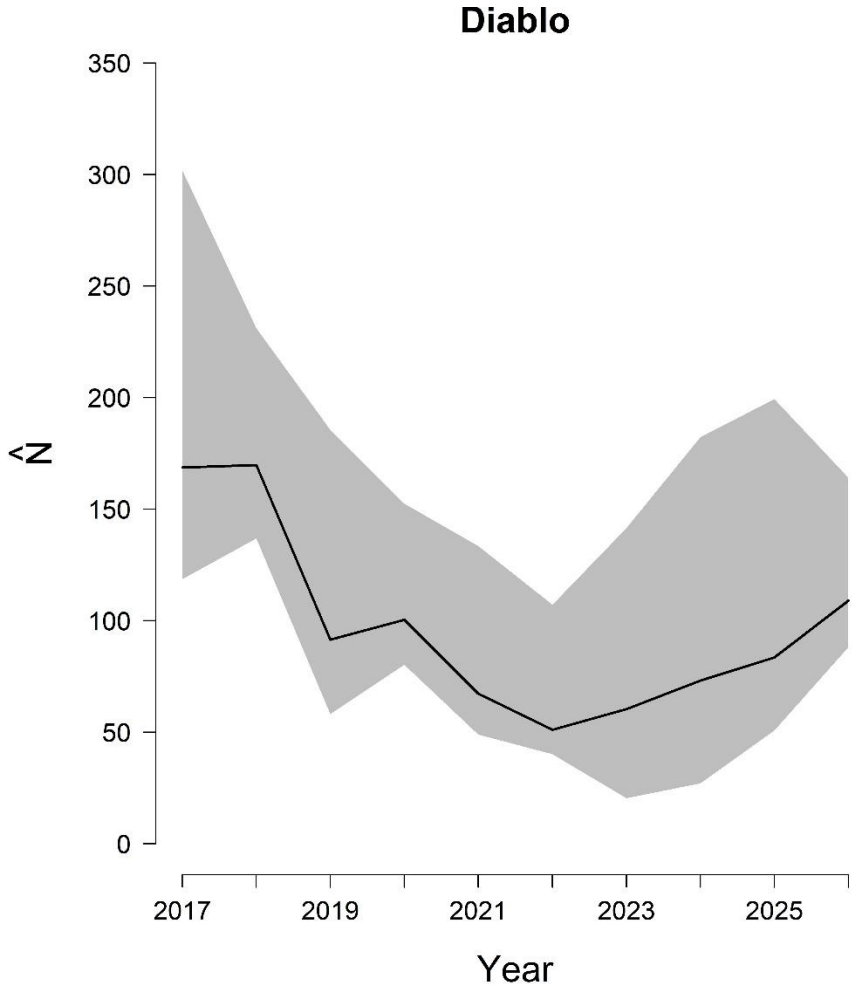


Figure 15. *N*-mixture model estimates of sage-grouse abundance within Diablo Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Drewsey PAC

The Drewsey PAC is an area of approximately 178,879 ha (442,015 ac), located mostly within Harney County; a small portion of the PAC falls within Malheur County. Fifty-three leks are known to exist in the Drewsey PAC. As of 2026, the conservation statuses of these leks are: 41 occupied, 5 occupied-pending, 1 unoccupied, and 6 historic leks.

During 2026, 89 lek surveys were conducted at 47 leks within the Drewsey PAC; 43 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Drewsey PAC was counted 1.89 times. Estimated sage-grouse abundance in the Drewsey PAC in 2026 was 1,808 birds (95% CI: 1,407–2,372 birds), down -0.5% from the 1,817 birds estimated in the PAC in 2025 (Figure 16). The Drewsey PAC population makes up 3.7% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Drewsey PAC was -30.9% during 2013–2019, the mid-term population trend (3 oscillations) was -37.9% during 2002–2019, and the long-term population trend (5 oscillations) was -61.9% during 1985–2019 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Drewsey PAC are available in Appendix I (Figure A1.10).

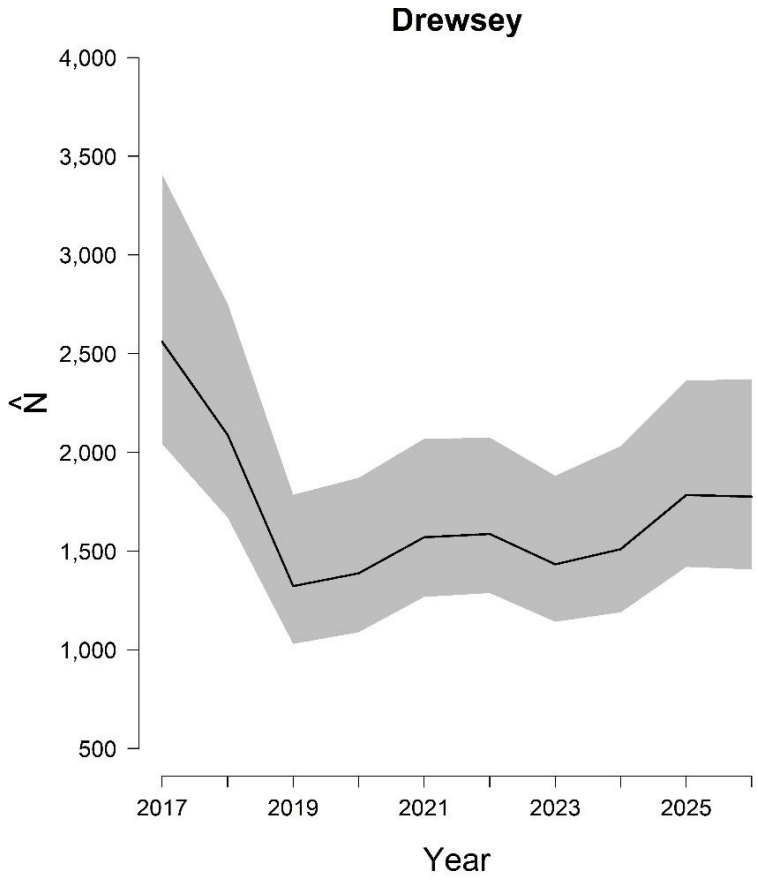


Figure 16. *N*-mixture model estimates of sage-grouse abundance within Drewsey Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Dry Valley – Jack Mountain PAC

The Dry Valley – Jack Mountain PAC is an area of approximately 80,749 ha (199,532 ac), located within Harney County, and contains 12 known leks. As of 2026, the conservation statuses of these leks are: 5 occupied, 2 unoccupied, and 5 historic leks.

During 2026, 15 lek surveys were conducted at 7 leks within the Dry Valley – Jack Mountain PAC; 6 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Dry Valley – Jack Mountain PAC was counted 2.14 times. Estimated sage-grouse abundance in the Dry Valley – Jack Mountain PAC in 2026 was 896 birds (95% CI: 700–1,210 birds), up +6.1% from the 844 birds estimated in the PAC in 2025 (Figure 17). The Dry Valley – Jack Mountain PAC population makes up 1.8% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Dry Valley – Jack Mountain PAC was +1.4% during 2015–2019, the mid-term population trend (3 oscillations) was -69.3% during 2002–2019, and the long-term population trend (5 oscillations) was -82.4% during 1984–2019 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Dry Valley/Jack Mountain PAC are available in Appendix I (Figure A1.11).

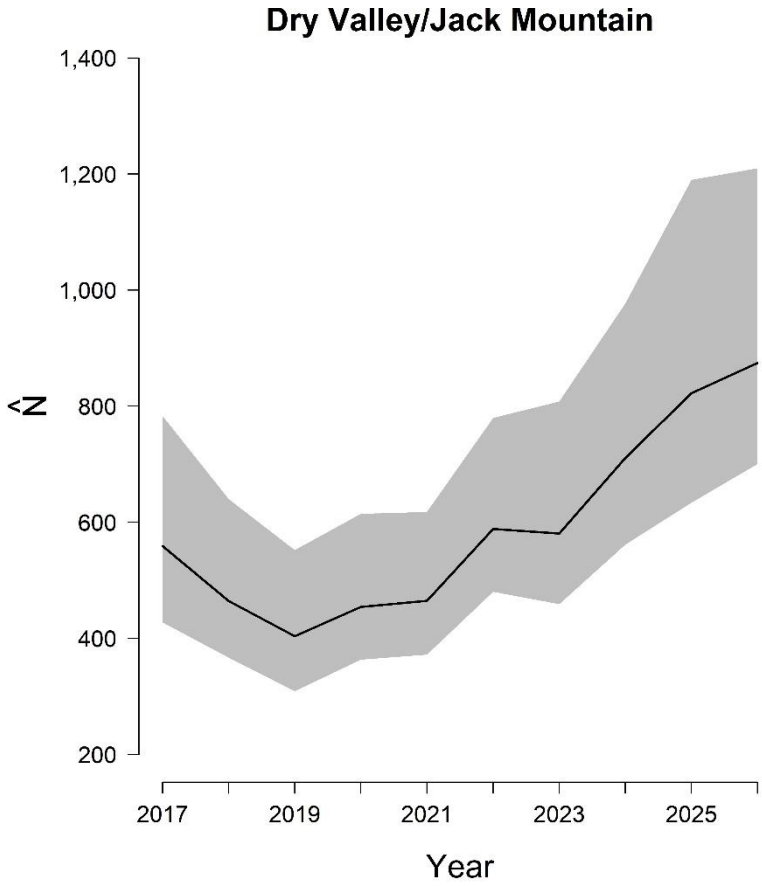


Figure 17. *N*-mixture model estimates of sage-grouse abundance within Dry Valley – Jack Mountain Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Juniper Mountain PAC

The Juniper Mountain PAC is an area of approximately 55,493 ha (137,125 ac), located within Harney County and Lake County, and contains 11 known leks. As of 2026, the conservation statuses of these leks are: 4 occupied, 1 occupied-pending, and 6 historic leks.

During 2026, 10 lek surveys were conducted at 5 leks within the Juniper Mountain PAC; 5 (100%) of the occupied or occupied-pending leks was surveyed one or more times in 2026. On average, each surveyed lek in the Juniper Mountain PAC was counted 2.0 times. Estimated sage-grouse abundance in the Juniper Mountain PAC in 2026 was 321 birds (95% CI: 205–601 birds), down -27.8% from the 445 birds estimated in the PAC in 2025 (Figure 18). Note, the large population increase in the Juniper Mountain PAC in 2025 and large decline in 2026 is likely a result of under sampling this PAC in 2025; use caution when interpreting these estimates. The Juniper Mountain PAC population makes up 0.7% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Juniper Mountain PAC was +11.6% during 2013–2019, the mid-term population trend (3 oscillations) was +50.0% during 1996–2019, and the long-term population trend (4 oscillations) was +4.3% during 1984–2019 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Juniper Mountain PAC are available in Appendix I (Figure A1.12).

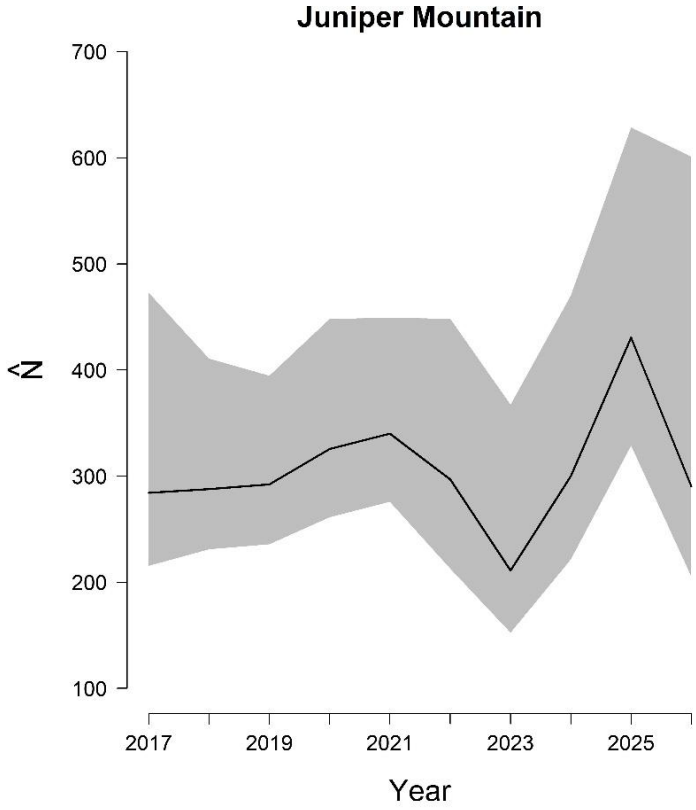


Figure 18. *N*-mixture model estimates of sage-grouse abundance within Juniper Mountain Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Louse Canyon PAC

The Louse Canyon PAC is an area of approximately 222,584 ha (550,012 ac), located within Malheur County, and contains 65 known leks. As of 2026, the conservation statuses of these leks are: 32 occupied, 7 occupied-pending, 9 unoccupied, and 17 historic leks.

During 2026, 55 lek surveys were conducted at 41 leks within the Louse Canyon PAC; 37 (97.4%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Louse Canyon PAC was counted 1.34 times. Estimated sage-grouse abundance in the Louse Canyon PAC in 2026 was 5,090 birds (95% CI: 3,390–7,751 birds), down -7.3% from the 5,493 birds estimated in the PAC in 2025 (Figure 19). The Louse Canyon PAC population makes up 10.3% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Louse Canyon PAC was -28.4% during 2013–2019, the mid-term population trend (2 oscillations) was -4.6% during 1996–2019, and the long-term population trend (3 oscillations) was -19.4% during 1985–2019 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Louse Canyon PAC are available in Appendix I (Figure A1.13).

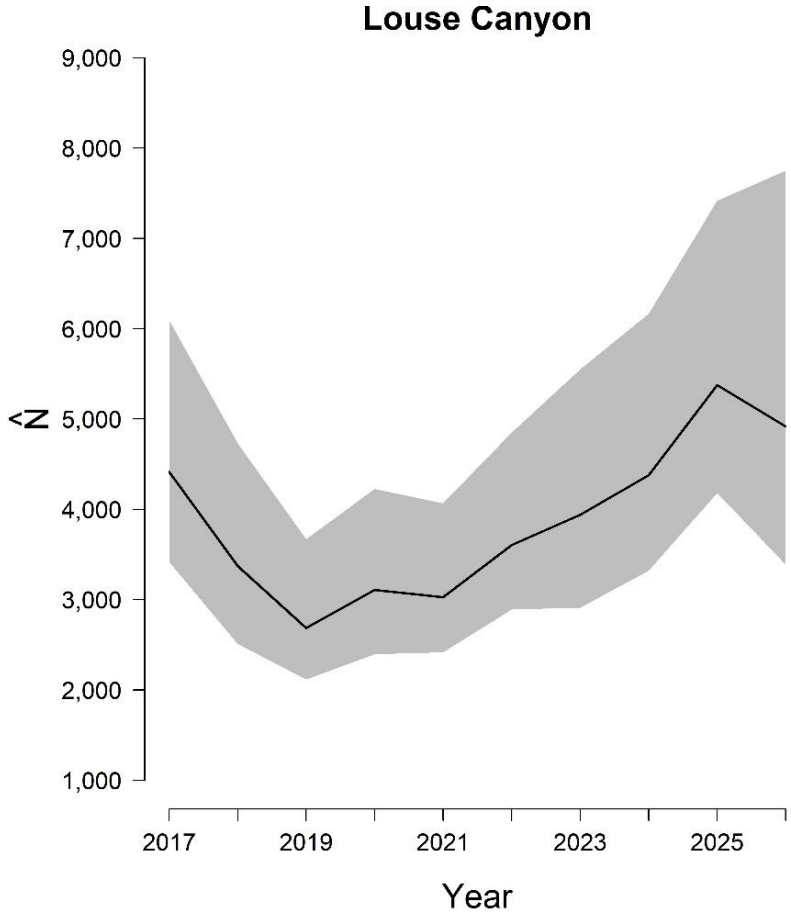


Figure 19. *N*-mixture model estimates of sage-grouse abundance within Louse Canyon Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

North Wagontire PAC

The North Wagontire PAC is an area of approximately 110,676 ha (273,484 ac), located mostly within Lake County; a portion of the PAC falls within Deschutes County and Harney County. Twenty leks are known to exist in the North Wagontire PAC. As of 2026, the conservation statuses of these leks are: 11 occupied, 1 occupied-pending, 1 unoccupied, and 7 historic leks.

During 2026, 29 lek surveys were conducted at 12 leks within the North Wagontire PAC; 12 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the North Wagontire PAC was counted 2.42 times. Estimated sage-grouse abundance in the North Wagontire PAC in 2026 was 479 birds (95% CI: 378–628 birds), down -7.1% from the 516 birds estimated in the PAC in 2025 (Figure 20). The North Wagontire PAC makes up 1.0% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the North Wagontire PAC was -32.7% during 2013–2023, the mid-term population trend (2 oscillations) was -47.2% during 2002–2023, and the long-term population trend (4 oscillations) was -68.7% during 1985–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the North Wagontire PAC are available in Appendix I (Figure A1.14).

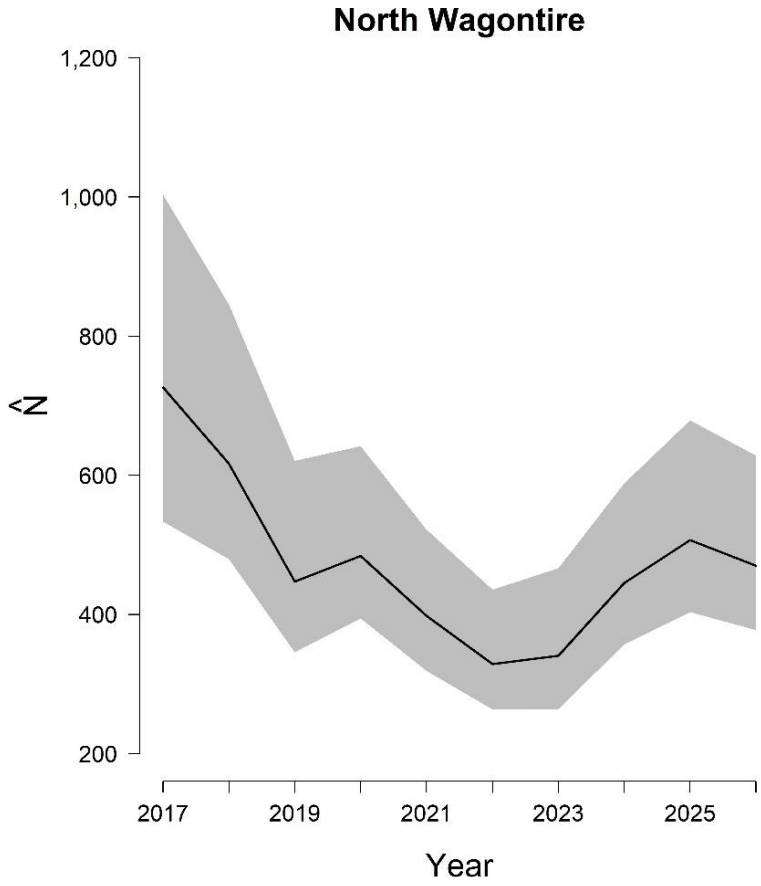


Figure 20. *N*-mixture model estimates of sage-grouse abundance within North Wagontire Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Paulina PAC

The Paulina PAC is an area of approximately 225,290 ha (556,698 ac), located mostly within Crook County; a portion of the PAC falls within Deschutes County, Harney County, and Lake County. Sixty-eight leks are known to exist in the Paulina PAC. As of 2026, the conservation statuses of these leks are: 37 occupied, 6 occupied-pending, 2 unoccupied-pending, 11 unoccupied, and 12 historic leks.

During 2026, 64 ground surveys and 54 aerial lek surveys were conducted at 58 leks within the Paulina PAC; 43 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Paulina PAC was counted 2.03 times. Estimated sage-grouse abundance in the Paulina PAC in 2026 was 2,428 birds (95% CI: 1,894–3,193 birds), up +11.1% from the 2,185 birds estimated in the PAC in 2025 (Figure 21). The Paulina PAC population makes up 4.9% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Paulina PAC was -16.7% during 2013–2023, the mid-term population trend (3 oscillations) was -50.1% during 2001–2023, and the long-term population trend (5 oscillations) was -50.9% during 1984–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Paulina PAC are available in Appendix I (Figure A1.15).

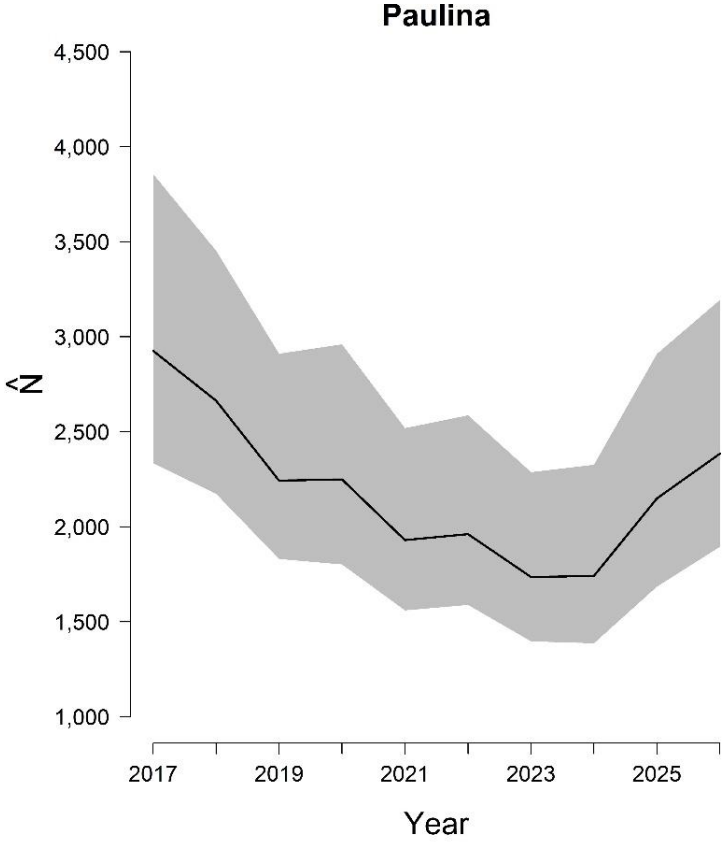


Figure 21. *N*-mixture model estimates of sage-grouse abundance within Paulina Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Pueblos PAC

The Pueblos PAC is an area of approximately 143,527 ha (354,659 ac), located within Harney County, and contains 47 known leks. As of 2026, the conservation statuses of these leks are: 30 occupied, 1 occupied-pending, 8 unoccupied, and 8 historic leks.

During 2026, 53 lek surveys were conducted at 36 leks within the Pueblos PAC; 31 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Pueblos PAC was counted 1.47 times. Estimated sage-grouse abundance in the Pueblos PAC in 2026 was 2,965 birds (95% CI: 2,311–3,902 birds), down -10.2% from the 3,303 birds estimated in the PAC in 2025 (Figure 22). The Pueblos PAC population makes up 6.0% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend in the Pueblos PAC was -6.3% during 2019–2022 (1 oscillation) and -28.1% during 2013–2022 (2 oscillations). The mid-term population trend (3 oscillations) was -23.2% during 2009–2022, and the long-term population trend (5 oscillations) was -19.7% during 1985–2022 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Pueblos PAC are available in Appendix I (Figure A1.16).

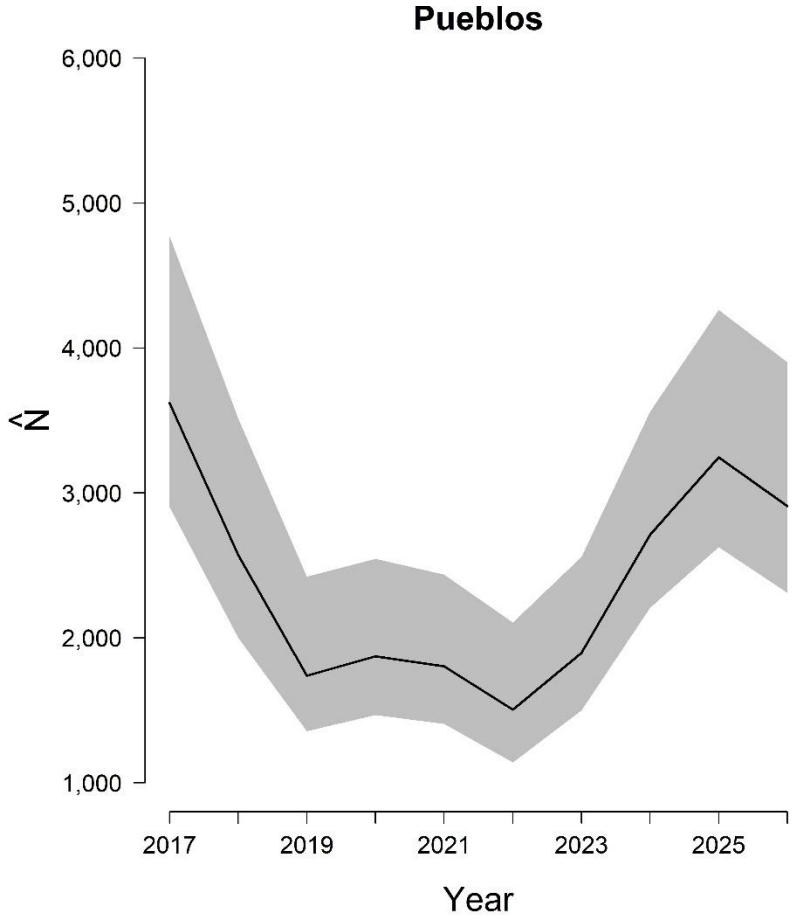


Figure 22. *N*-mixture model estimates of sage-grouse abundance within Pueblos Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Saddle Butte PAC

The Saddle Butte PAC is an area of approximately 43,189 ha (106,722 ac), located in Malheur County, and contains 5 known leks. As of 2026, the conservation statuses of these leks are: 4 occupied leks and 1 unoccupied-pending lek.

During 2026, 15 lek surveys were conducted at 4 leks within the Saddle Butte PAC; 4 (80%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Saddle Butte PAC was counted 3.75 times. Estimated sage-grouse abundance in the Saddle Butte PAC in 2025 was 556 birds (95% CI: 432–766 birds), down -11.2% from the 626 birds estimated in the PAC in 2025 (Figure 23). The Saddle Butte PAC population makes up 1.1% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Saddle Butte PAC was +63.0% during 2013–2020, the mid-term population trend (3 oscillations) was +63.0% during 2002–2020, and the long-term population trend (5 oscillations) was +41.9% during 1985–2020 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Saddle Butte PAC are available in Appendix I (Figure A1.17).

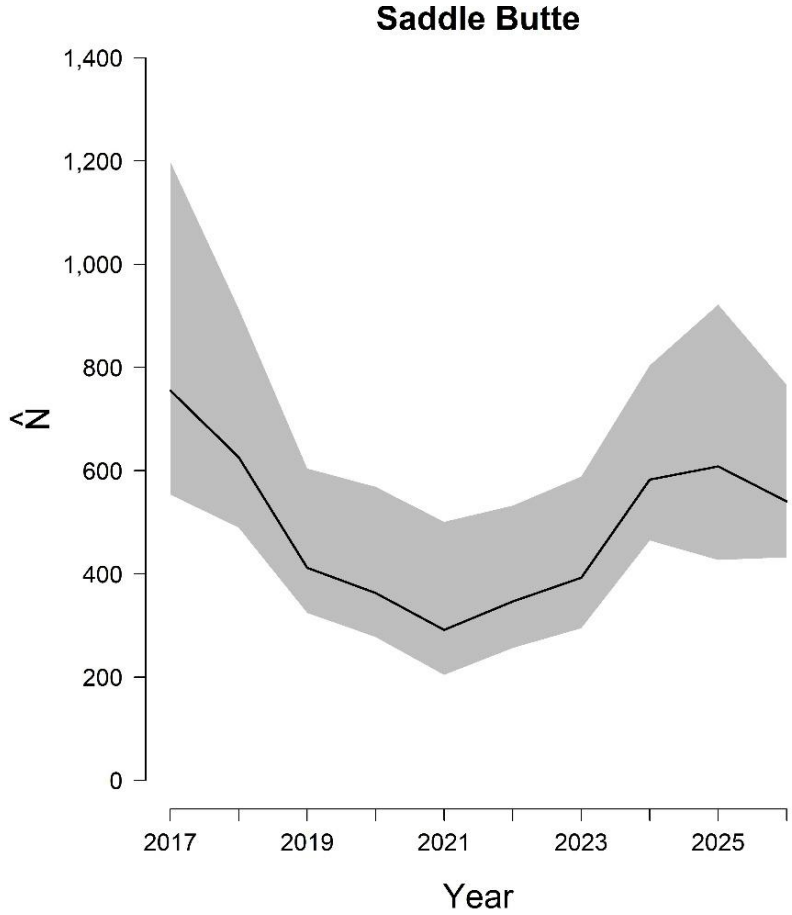


Figure 23. *N*-mixture model estimates of sage-grouse abundance within Saddle Butte Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Sheepshead PAC

The Sheepshead PAC is an area of approximately 20,084 ha (49,627 ac), located within Harney County and Malheur County, and contains 4 known leks. As of 2026, the conservation statuses of these leks are: 2 occupied, 1 unoccupied, and 1 historic lek.

During 2026, 6 lek surveys were conducted at the 2 leks within the Sheepshead PAC. On average, each surveyed lek in the Sheepshead PAC was counted 3.0 times. Estimated sage-grouse abundance in the Sheepshead PAC in 2026 was 290 birds (95% CI: 196–481 birds), up +7.4% from the 271 birds estimated in the PAC in 2025 (Figure 24). The Sheepshead PAC population makes up 0.6% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Sheepshead PAC was +23.5% during 2008–2023, the mid-term population trend (2 oscillations) was -25.0% during 1996–2023, and the long-term population trend (3 oscillations) was -44.7% during 1985–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Sheepshead PAC are available in Appendix I (Figure A1.18)

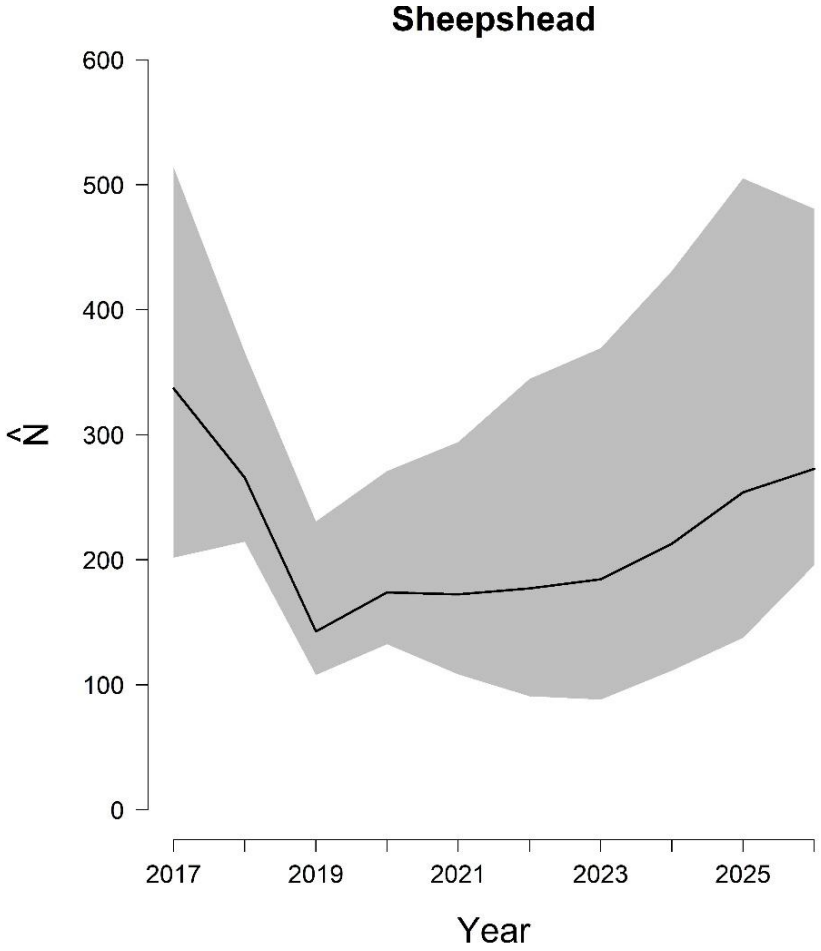


Figure 24. *N*-mixture model estimates of sage-grouse abundance within Sheepshead Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Soldier Creek PAC

The Soldier Creek PAC is an area of approximately 163,915 ha (405,039 ac), located in Malheur County, and contains 67 known leks. As of 2026, the conservation statuses of these leks are: 36 occupied, 3 occupied-pending, 13 unoccupied, and 15 historic leks.

During 2026, 101 lek surveys were conducted at 45 leks within the Soldier Creek PAC; 39 (97.5%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Soldier Creek PAC was counted 2.24 times. Estimated sage-grouse abundance in the Soldier Creek PAC in 2026 was 1,686 birds (95% CI: 1,234–2,382 birds), down -12.0% from the 1,916 birds estimated in the PAC in 2025 (Figure 25). The Soldier Creek PAC population makes up 3.4% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Soldier Creek PAC was -39.1% during 2013–2020, the mid-term population trend (3 oscillations) was -45.4% during 1995–2020, and the long-term population trend (4 oscillations) was -51.4% during 1984–2020 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Soldier Creek PAC are available in Appendix I (Figure A1.19).

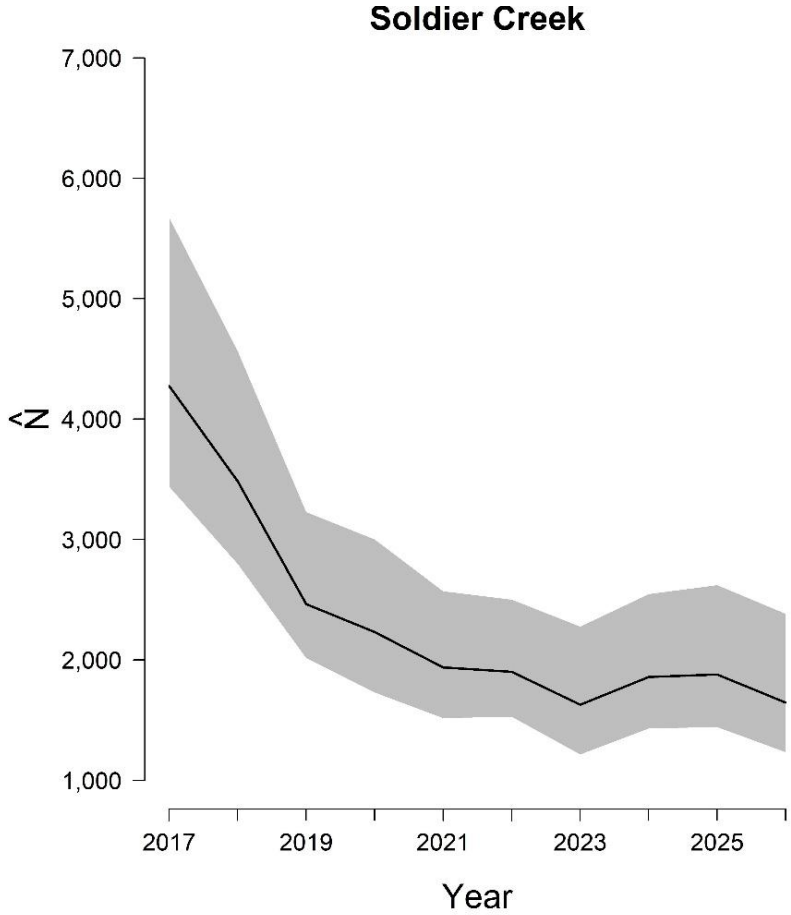


Figure 25. *N*-mixture model estimates of sage-grouse abundance within Soldier Creek Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Steens PAC

The Steens PAC is an area of approximately 222,216 ha (549,101 ac), located mostly within Harney County; a small portion of the PAC falls within Malheur County. Fifty-eight leks are known to exist in the Steens PAC. As of 2026, the conservation statuses of these leks are: 44 occupied, 3 occupied-pending, 2 unoccupied, and 9 historic leks.

During 2026, 75 lek surveys were conducted at 42 leks within the Steens PAC; 39 (95.1%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Steens PAC was counted 1.79 times. Estimated sage-grouse abundance in the Steens PAC in 2026 was 7,460 birds (95% CI: 5,919–9,670 birds), up +1.3% from the 7,363 birds estimated in the PAC in 2025 (Figure 26). The Steens PAC population makes up 15.1% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Steens PAC was -9.0% during 2013–2020, the mid-term population trend (3 oscillations) was +6.3% during 1996–2020, and the long-term population trend (4 oscillations) was -31.3% during 1985–2020 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Steens PAC are available in Appendix I (Figure A1.20).

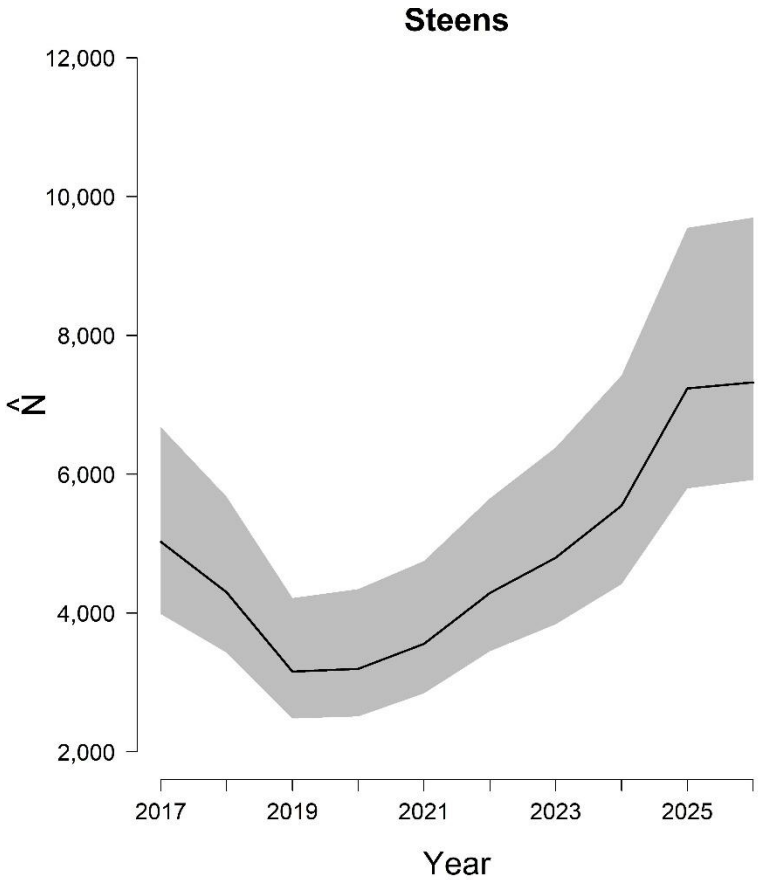


Figure 26. *N*-mixture model estimates of sage-grouse abundance within Steens Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Trout Creeks PAC

The Trout Creeks PAC is an area of approximately 193,032 ha (476,988 ac), located within Harney County and Malheur County, and contains 104 known leks. As of 2026, the conservation statuses of these leks are: 53 occupied, 10 occupied-pending, 20 unoccupied, and 21 historic leks.

During 2026, 118 lek surveys were conducted at 69 leks within the Trout Creeks PAC; 57 (91.9%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Trout Creeks PAC was counted 1.71 times. Estimated sage-grouse abundance in the Trout Creeks PAC in 2026 was 3,956 birds (95% CI: 3,066–5,231 birds), down -6.5% from the 4,233 birds estimated in the PAC in 2025 (Figure 27). The Trout Creeks PAC population makes up 8.0% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Trout Creeks PAC was +15.1% during 2013–2021, the mid-term population trend (3 oscillations) was -6.6% during 2002–2021, and the long-term population trend (5 oscillations) was -28.4% during 1985–2021 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Trout Creeks PAC are available in Appendix I (Figure A1.21).

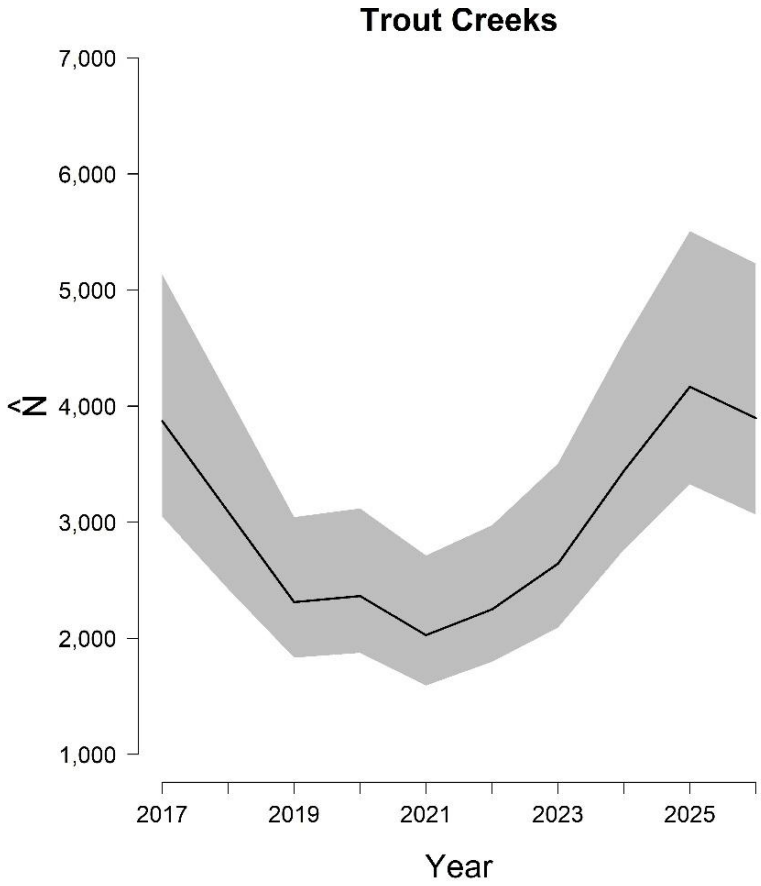


Figure 27. *N*-mixture model estimates of sage-grouse abundance within Trout Creeks Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Tucker Hill PAC

The Tucker Hill PAC is an area of approximately 12,482 ha (30,844 ac), located within Lake County, and contains 6 known leks. As of 2026, the conservation statuses of these leks are: 4 occupied and 2 historic leks.

During 2026, 11 lek surveys were conducted at the 4 occupied leks within the Tucker Hill PAC. On average, each surveyed lek in the Tucker Hill PAC was counted 2.75 times. Estimated sage-grouse abundance in the Tucker Hill PAC in 2026 was 315 birds (95% CI: 229–458 birds), down -6.4% from the 337 birds estimated in the PAC in 2025 (Figure 28). The Tucker Hill PAC population makes up 0.6% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Tucker Hill PAC was -7.1% during 2013–2023, the mid-term population trend (3 oscillations) was +8.3% during 2001–2023, and the long-term population trend (5 oscillations) was +105.3% during 1984–2023 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Tucker Hill PAC are available in Appendix I (Figure A1.22).

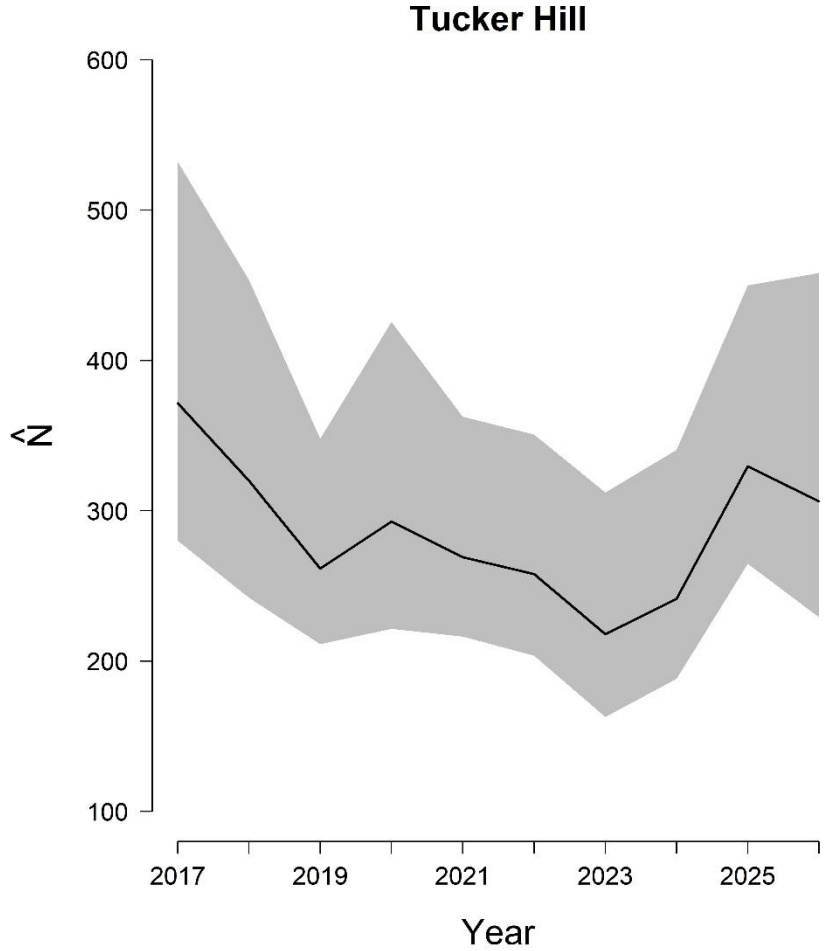


Figure 28. *N*-mixture model estimates of sage-grouse abundance within Tucker Hill Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Warner PAC

The Warner PAC is an area of approximately 135,531 ha (334,901 ac), located within Lake County, and contains 63 known leks. As of 2026, the conservation statuses of these leks are: 33 occupied, 5 occupied-pending, 10 unoccupied, and 15 historic leks.

During 2026, 74 lek surveys were conducted at 39 leks within the Warner PAC; 38 (100%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each surveyed lek in the Warner PAC was counted 1.90 times. Estimated sage-grouse abundance in the Warner PAC in 2026 was 4,156 birds (95% CI: 3,321–5,375 birds), up +0.3% from the 4,144 birds estimated in the PAC in 2025 (Figure 29). The Warner PAC population makes up 8.4% of Oregon's overall sage-grouse population (Table 2).

The short-term population trend (1 oscillation) in the Warner PAC was -13.6% during 2014–2019, the mid-term population trend (3 oscillations) was -37.8% during 1996–2019, and the long-term population trend (4 oscillations) was -47.4% during 1984–2019 (Table A1.1). Figures illustrating the long-term trends (1980–2025) for the Warner PAC are available in Appendix I (Figure A1.23).

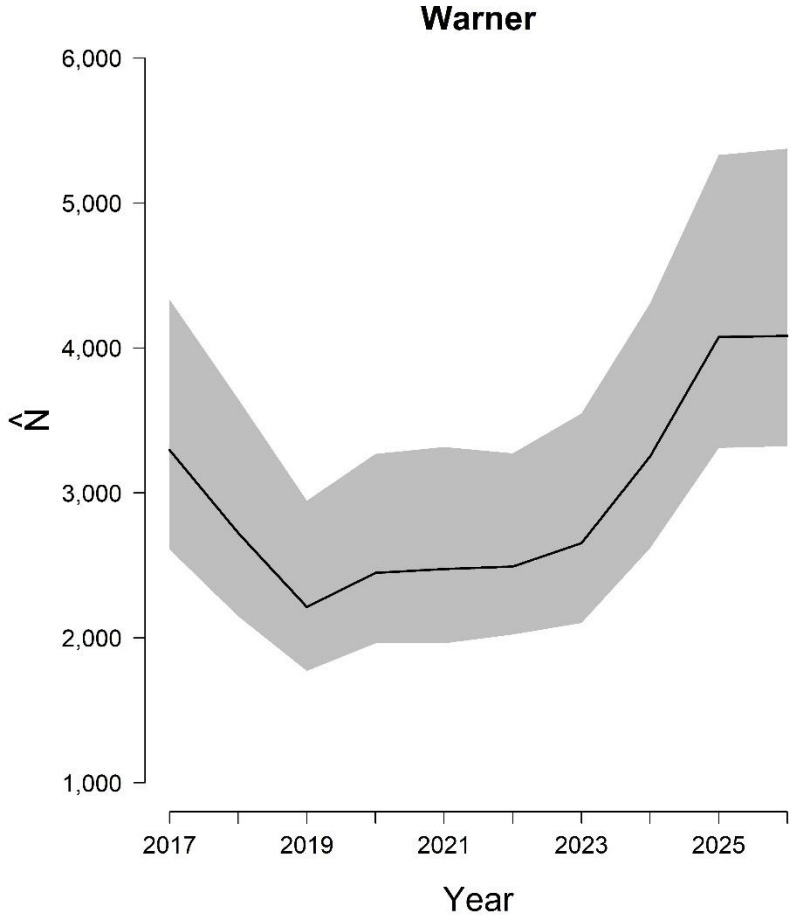


Figure 29. *N*-mixture model estimates of sage-grouse abundance within Warner Priority Area for Conservation in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Areas outside of PACs (Low-Density Habitats)

There are 132 known leks located in Oregon's low-density habitat areas, outside of PACs. As of 2026, the conservation statuses of these leks are: 26 occupied, 10 occupied-pending, 3 unoccupied-pending, 35 unoccupied, and 58 historic leks.

During 2026, 88 ground surveys and 5 aerial lek surveys were conducted at 44 leks in areas outside of PACs; 33 (84.6%) of the occupied or occupied-pending leks were surveyed one or more times in 2026. On average, each lek surveyed in areas outside of PACs was counted 2.11 times. Estimated sage-grouse abundance in low-density habitat in 2026 was 814 birds (95% CI: 575–1,225 birds), down -5.4% from the 860 birds estimated in low-density habitats in 2025 (Figure 30).

The short-term population trend (1 oscillation) in areas outside of PACs was -60.4% during 2009–2019, the mid-term population trend (2 oscillations) was -75.0% during 2002–2019, and the long-term population trend (4 oscillations) was -84.0% during 1985–2019 (Table A1.1). Notably, those areas outside of PACs have realized greater declines in population trend in both the short-term and long-term than areas within PACs. Figures illustrating the long-term trends (1980–2025) for areas outside of PACs are available in Appendix I (Figure A1.24).

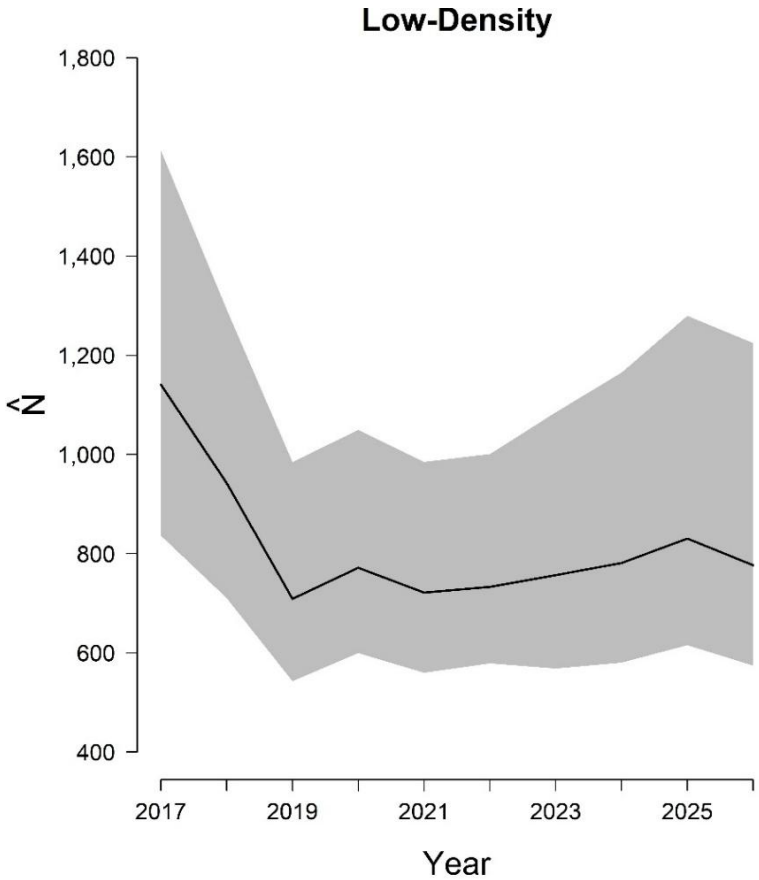


Figure 30. *N*-mixture model estimates of sage-grouse abundance within low-density habitat areas in the state of Oregon, 2017–2026. The median (black line) and 95% credible interval (gray polygon) are plotted.

Summary and Conclusions

The sage-grouse population in Oregon experienced a slight decline in 2026, suggesting 2025 was the peak in Oregon's current sage-grouse population cycle, and sage-grouse populations may begin trending downward over the next few years. The most recent population nadir (trough) was evident in 2019 when the statewide population was the lowest estimate recorded during the 47-year period from 1980–2026. Sage-grouse populations exhibit density dependent fluctuations over time (Garton et al. 2011) and population trends (i.e., changes in population size) should be interpreted from complete population cycles using the population nadirs (Coates et al. 2021). In recent decades, sage-grouse populations in Oregon have cycled on an approximately 6–12-year period. The estimated statewide population abundance has followed this pattern over the past 9 years, with 3 years of declining population trends from 2017–19, followed by population increases from 2020–25, with a slight decline in 2026, indicating 2025 may have been the peak in Oregon's current population cycle. During the 1980–2026 timeframe, five nadirs exist in Oregon's statewide sage-grouse population cycles, in years 1985, 1996, 2008, 2013, and 2019. Comparing trends for each of these four previous population nadirs to the most recent nadir, Oregon's sage-grouse populations, statewide, have declined by -30.4% (1985–2019), -19.3% (1996–2019), -12.5% (2008–2019), and -14.1% (2013–2019).

Population declines were expected in 2026 based on analyses of sage-grouse wings collected from hunters following the 2025 hunting season. These wing data indicated sage-grouse production in 2025, as measured by percent juveniles in the harvest and the number of chicks per hen (CPH), was below average. Percent juveniles in the harvest was 39%, below the long-term average of 48% (1993–2025). The number of chicks per hen in 2025 was 0.95 CPH, below the long-term average of 1.48 CPH (1993–2025).

Oregon's statewide sage-grouse population declined by -5.1% between 2025 and 2026, to an estimated 49,332 birds (95% CI: 39,666–62,993 birds), still the second highest estimate recorded in Oregon since 2017. Population trends at the statewide level are primarily driven by 8 PACs which make up the majority (>70%) of Oregon's sage-grouse population by abundance: Steens PAC (15.1%), Beatys PAC (11.4%), Louse Canyon PAC (10.3%), Warner PAC (8.4%), Trout Creeks PAC (8.0%), Bully Creek PAC (6.2%), Crowley PAC (6.4%), and Pueblos PAC (6.0%). Increasing population trends between 2025 and 2026 were seen in 10 PACs, with declining trends in 11 PACs. Population increases ranged from +0.3% (Warner PAC) to +18.4% (Diablo PAC), with only 3 PACs increasing by more than +10%, most significantly, the Paulina PAC (+11.1%). Population declines ranged from -0.5% (Drewsey PAC) to -27.8% (Juniper Mountain PAC), with 7 PACs declining by more than -10%, most significantly, the Cow Valley PAC (-18.1%), Crowley PAC (-12.3%), Soldier Creek PAC (-12.0%), Bully Creek PAC (-10.7%), and Pueblos PAC (-10.2%).

Previous versions of the annual Oregon Greater Sage-Grouse Population Monitoring Report (2011–2024) presented Oregon's sage-grouse population size estimates and population trends obtained from the breeding population analysis described in Hagen (2011). This methodology was updated in 2025 when ODFW contracted with USGS to develop a new sage-grouse population model (*N*-Mixture model) for Oregon. The updated *N*-Mixture model accounts for imperfect detection of male sage-grouse attending leks and provides unbiased estimates of sage-

grouse abundance at large (Oregon range-wide) and smaller (PAC) spatial scales. Importantly, the new model adjusts for presently unknown leks on the landscape by considering those previously unknown leks added to the database annually, 1941–2026. Under ODFW's previous sage-grouse population model, the addition of new leks was mostly unaccounted for, resulting in large apparent population increases following their addition to the lek database. Over 100 previously unknown leks have been discovered in Oregon and added to the statewide lek database over the past 10 years, largely driven by intensive aerial survey effort in many of Oregon's most productive PACs. Since 2015, Oregon's aerial lek survey efforts have been supported by the BLM through cooperative funding agreements with ODFW. During each sage-grouse breeding season since 2015, aerial transects have covered >100,000 acres, annually, within high-priority PACs and adjacent low-density habitats, and have successfully located many previously unknown leks, documented lek location shifts, and monitored activity of leks which are inaccessible from the ground.

ODFW is confident that the sage-grouse population abundance estimates and trends reported in this document are accurate and scientifically supported and should be considered the best available science, as they were informed by ODFW's most current sage-grouse data. Standardized lek survey procedures have been in place since 1996, providing reliable, high-quality sage-grouse population data collected in Oregon during the past 30+ years. Additionally, the Department has updated its sage-grouse population analyses to utilize the most current statistical modeling techniques and minimize any potential biases in the population estimates. However, it is important to note that estimating sage-grouse populations from lek surveys is a complicated process, containing multiple assumptions and potential sources of uncertainty, including assumptions regarding the lek attendance rate of male sage-grouse, knowledge of the distribution of leks in an area, bias in the selection of historically monitored leks, and uncertainty regarding the rate of new lek formation (Beck and Braun 1980, Walsh et al. 2004). The information presented in this report should be interpreted within the context of these assumptions, sources of uncertainty, and potential biases.

ODFW's original sage-grouse population and habitat objectives for Oregon established 2003 as the baseline year in which Oregon's sage-grouse population and habitat metrics should be assessed (Hagen 2005). During the most recent update (2025) to the Oregon Sage-Grouse Conservation Assessment and Strategy (CAAS), the Department updated the statewide sage-grouse population goal and objectives to reflect ODFW's new population model and the best available science regarding unbiased assessment of sage-grouse population trends (Coates et al. 2021). Considering sage-grouse populations in Oregon generally oscillate over 6–12-year cycles, the Department will continue to manage sage-grouse to maintain or enhance their statewide distribution and abundance oscillating around the 2003 spring breeding population level, approximately 53,000 birds, over the next 50 years. As of 2026, the estimated population is -6.8% below the adjusted 2003 baseline population estimate of 52,903 birds, and this estimate is the second closest year Oregon has been to reaching the statewide baseline population since 2006. However, as ODFW's management objectives for Oregon's sage-grouse populations are to maintain stable or increasing population trends statewide and at the PAC-scale, where trends are assessed between nadirs (troughs) of the population cycles, the population trends in many of Oregon's sage-grouse PACs are quite concerning (Appendix I). Only a few PACs have seen stable or increasing population trends in the short-term, mid-term, or long-term. Additionally,

Oregon's 2019 statewide sage-grouse population estimate was the lowest recorded during the long-term monitoring timeframe (1980–2026), which still warrants serious concern for the sage-grouse populations in Oregon. The statewide population has rebounded following the 2019 historic low estimate, and the moderate to large population increases realized during 2020–2025 in the current population cycle may be adequate to prevent the next trough in the cycle from being a new historic low population estimate for sage-grouse in Oregon, depending on precipitation patterns and wildfire propensity in sage-grouse habitats over the next decade. Continued dedication to maintaining high levels of sage-grouse lek survey effort, both ground and aerial, will help ODFW closely monitor the current population trend. Oregon has an excellent framework for sage-grouse conservation through Oregon Administrative Rules (OARs) 660-023-0115 and 635-140-0000–0025, but active habitat management and restoration in core sage-grouse habitat should be accelerated to the greatest extent possible to maintain sage-grouse range at its current extent and support the rebound of Oregon's sage-grouse populations over the long-term.

The active wildfire season of summer 2026 greatly impacted Oregon's sage-grouse habitats, as >50 wildfires burned a total of 761,372 acres within sage-grouse core (544,869 ac) and low-density habitat (216,503 ac) in Oregon (Appendix 5). Within core habitat, 53 occupied or occupied-pending leks fell within a 2026 fire perimeter (Table A5.1). These populations must be closely monitored over the next several years to assess the impacts of the wildfires on local populations and inform post-fire recovery of affected sagebrush-steppe habitats.

The sage-grouse population in the Baker PAC realized a moderate increase (+7.5%) between 2025 and 2026 and is estimated at 508 individuals. However, this PAC has declined by approximately -80% since the early 2000s, and unlike adjacent populations, the Baker PAC population has consistently declined since 2017. Based on abundance over the past 10 years estimates and the raw lek count data showing little variation in male lek complex attendance, the Baker PAC appears to have stabilized at a low level of abundance. This population has not displayed density dependent fluctuations or responses to changes in annual precipitation patterns over the past decade, which is concerning as these responses have been observed in populations throughout the majority of Oregon's sage-grouse range during this timeframe. The lack of a response to annual conditions by the Baker PAC sage-grouse population may indicate higher probability of extirpation of this local population (Coates et al. 2018). Given the population's small size, its geographic isolation from larger PACs, and the negative long-term trends, probability of persistence of the Baker PAC sage-grouse population is decreasing. In 2026, as a complementary tool to the existing habitat investments, ODFW contracted with OSU to initiate a translocation-based augmentation, moving birds from adjacent source populations to the Baker PAC. The goal of this augmentation is to increase genetic diversity within this potentially genetically depressed population. During March–July 2026, we initiated a pilot season using the brood-unit translocation methods of Meyerpeter et al. (2024). This methodology involves capturing and marking female sage-grouse, tracking the hens through the nesting season, and recapturing the hen, along with her surviving chicks following a successful nest attempt. Translocating females with broods increases post-release recruitment compared to traditional pre-nesting female translocations (Meyerpeter et al. 2024). Due to its similar elevation and strong population performance during 2024 and 2025, the Crowley PAC was selected as source population for the first year (2026) of the translocation effort. We captured and fitted 7 hens with

GPS-PTT units; 3 hens successfully nested and 2 hens with broods survived until the chicks were at least 7 days old. Several attempts were made to capture these two hens and broods, but no brood-units were successfully captured and translocated during 2026. As of November 2026, ODFW and partners are discussing the next steps for this translocation project, especially given the potentially significant effects of the 2026 wildfires in the Crowley PAC.

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Appendix I – Long-Term Population Trends by PAC

ODFW delineated the breeding habitat, based on lek size and distribution, of approximately 90% of the state's sage-grouse population, and grouped this area into 20 "Sage-Grouse Core Areas" during 2011–12 (Hagen 2011). During 2022–2023, ODFW worked with our partners to update Oregon's map of sage-grouse core areas and low-density habitats. The project identified the most productive sage-grouse populations and habitats and the important connectivity habitats among these core habitats. The revision incorporated new data collected since 2011 and utilized the best available science to identify areas that currently provide breeding, brood-rearing and summering, wintering, and migratory habitats for greater sage-grouse in Oregon. In December 2023, the Oregon Fish and Wildlife Commission reviewed and approved the updated habitat map (Figure 1).

Since the initial delineation of these core areas, they have been incorporated into multiple assessments and regulatory documents, including the 2015 U.S. Fish and Wildlife Service "Not-Warranted" decision (USFWS 2015), the BLM Oregon Greater Sage-Grouse Approved Resource Management Plan Amendments (US DOI BLM OR/WA 2015, US DOI BLM 2025), and the Oregon Sage-Grouse Action Plan (SageCon 2015). The term Priority Area of Conservation (PAC) corresponds directly with ODFW's core areas, and the term Priority Habitat Management Area (PHMA) describes the portions of each core area (PAC) under BLM administration (US DOI BLM 2025). ODFW provides lek survey results to the BLM following the lek survey period and coordinates with BLM during the annual assessment of BLM's sage-grouse adaptive management triggers. Concurrently with their adoption in various regulatory documents, Oregon's PACs are a significant focus of ongoing landscape-scale sage-grouse habitat management and conservation.

Habitat management for sage-grouse in Oregon often occurs at the PAC-scale, or at even smaller scales within a PAC. Sage-grouse population abundance estimates from ODFW's new *N*-Mixture model are unavailable at these finer scales prior to 2017; however, estimates of relative sage-grouse abundance are available through the USGS Rangewide Population Monitoring Framework (Coates et al. 2021, 2026). Note, there is a 1-year lag for these reported trends, as the results from the annual Rangewide Population Monitoring Framework analyses are not available until the following calendar year (i.e., USGS Population Monitoring Report from the 2026 lek survey season will be available in 2027).

Nadir-to-nadir sage-grouse population trends were calculated for each PAC during three time periods, short-term, mid-term, and long-term, using sage-grouse abundance data from Coates et al. 2026 (Ver. 6.1). Within PACs, the estimated Abundance Indexes for all leks were summed each year, 1980–2025. The short-term trend is defined as the most recent single oscillation of Oregon's sage-grouse population cycle, the mid-term trend is the most recent 2 or 3 oscillations of the population cycle, and the long-term trend is the most recent 4 or 5 oscillations of Oregon's sage-grouse population cycle. The specific time periods for population cycle oscillations of each PAC are described below and are viewable in the associated figures, below.

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Table A1. 1. Sage-grouse population trends within each of Oregon's Sage-Grouse Priority Areas for Conservation (PACs), 1980–2025.

	Trend		
Priority Area for Conservation (PAC)	**Short-term**[1] (1 oscillation, ~2012–2020)	**Mid-term**[2] (2 or 3 oscillations, ~2000–2020)	**Long-term**[3] (4 or 5 oscillations, ~1985–2020)
Baker	-21.9%	-78.1%	-74.6%
Beatys	-23.5%	-74.7%	-63.2%
Brothers	-56.9%	-37.8%	-76.7%
Bully Creek	-55.7%	-37.8%	-1.6%
Burns	-35.1%	-46.7%	-52.0%
Cow Lakes	-25.6%	-62.0%	-79.0%
Cow Valley	-36.7%	-21.4%	+15.2%
Crowley	-14.6%	-34.8%	-38.9%
Diablo	-48.0%	-41.9%	-65.8%
Drewsey	-30.9%	-37.9%	-61.9%
Dry Valley – Jack Mountain	+1.4%	-69.3%	-82.4%
Juniper Mountain	+11.6%	+50.0%	+4.3%
Louse Canyon	-28.4%	-4.6%	-19.4%
North Wagontire	-32.7%	-47.2%	-68.7%
Paulina	-16.7%	-50.1%	-50.9%
Pueblos	-6.3%	-23.2%	-19.7%
Saddle Butte	+63.0%	+63.0%	41.9%
Sheepshead	+23.5%	-25.0%	-44.7%
Soldier Creek	-39.1%	-45.4%	-51.4%
Steens	-9.0%	+6.3%	-31.3%
Trout Creeks	+15.1%	-6.6%	-28.4%
Tucker Hill	-7.1%	+8.3%	+105.3%
Warner	-13.6%	-37.8%	-47.4%
Areas outside of PACs	-60.4%	-75.0%	-84.0%

[1] The short-term trend is defined as the most recent single oscillation of Oregon's sage-grouse population cycle. Generally, the short-term trend considers the 2012–2020 time period. The trend is calculated among nadirs of the population cycle for each PAC independently, so some variability exists in the defined time periods. Refer to the section below for the specific population nadirs and associated time period oscillations for each PAC.

[2] The mid-term trend is defined as the most recent 2 or 3 oscillations of Oregon's sage-grouse population cycle. Generally, the mid-term trend considers the 2000–2020 time period.

[3] The long-term trend is defined as the most recent 4 or 5 oscillations of Oregon's sage-grouse population cycle. Generally, the long-term trend considers the 1985–2020 time period.

Baker PAC

Nadirs of the population cycle in the Baker PAC occurred during the years 1984, 1993, 2001, 2014, and 2023 (Figure A1.1A). The Baker PAC experienced an increasing population trend during the periods of 1984 1993–2001, and declining trends during all other periods (Figure A1.1B). The short-term population trend (1 oscillation) was -21.9% during 2014–2023, the mid-term population trend (2 oscillations) was -78.1% during 2001–2023, and the long-term population trend (4 oscillations) was -74.6% during 1984–2023 (Table A1.1).

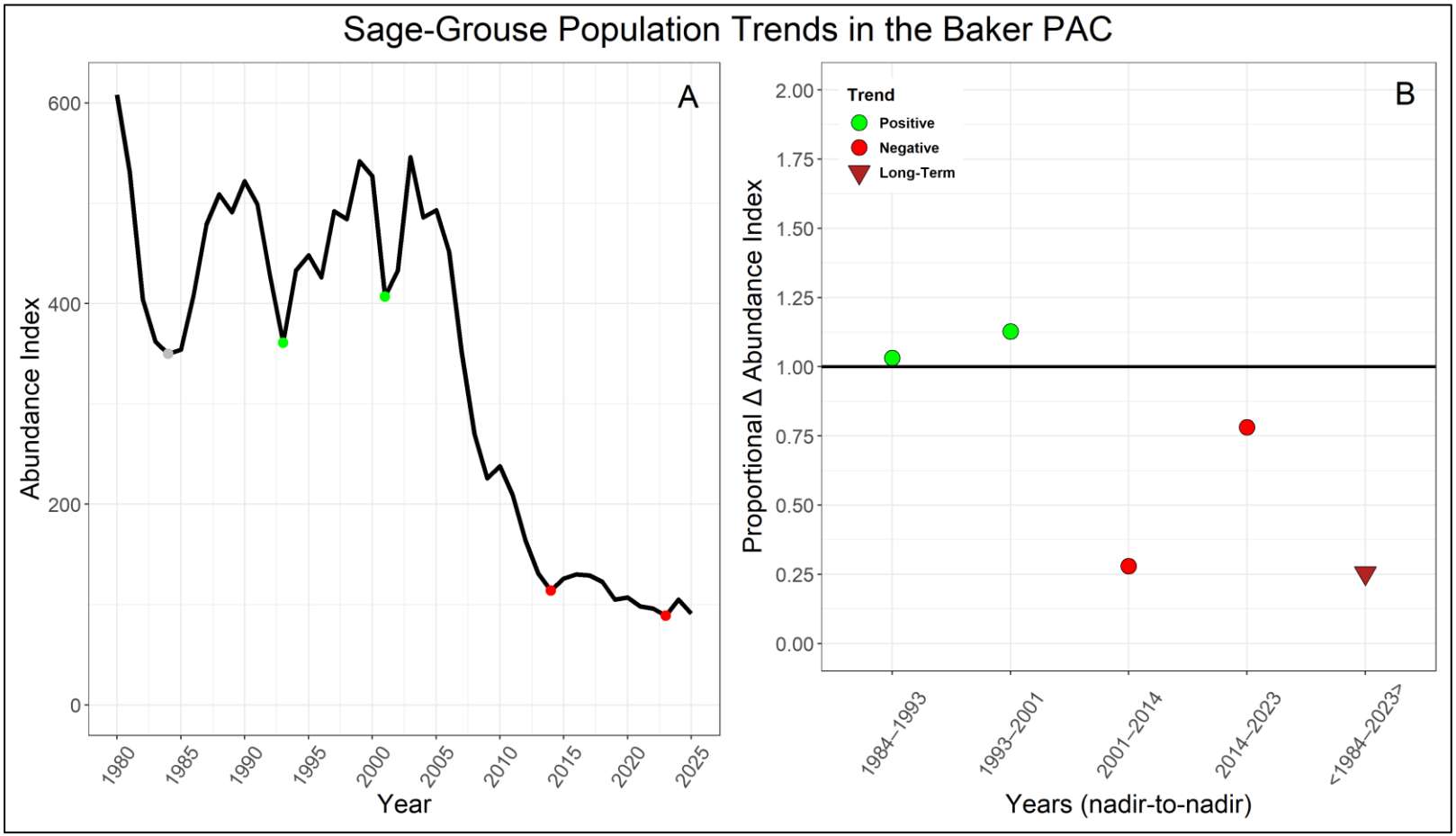


Figure A1. 1. Sage-grouse population trends in the Baker PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Beatys PAC

Nadirs of the population cycle in the Beatys PAC occurred during the years 1984, 1996, 2002, 2013, and 2022 (Figure A1.2A). The Beatys PAC experienced an increasing population trend during the periods of 1984–1996 and 1996–2002, and declining trends during all other periods (Figure A1.2B). The short-term population trend (1 oscillation) was -23.5% during 2013–2022, the mid-term population trend (2 oscillations) was -74.7% during 2002–2022, and the long-term population trend (4 oscillations) was -63.2% during 1984–2022 (Table A1.1).

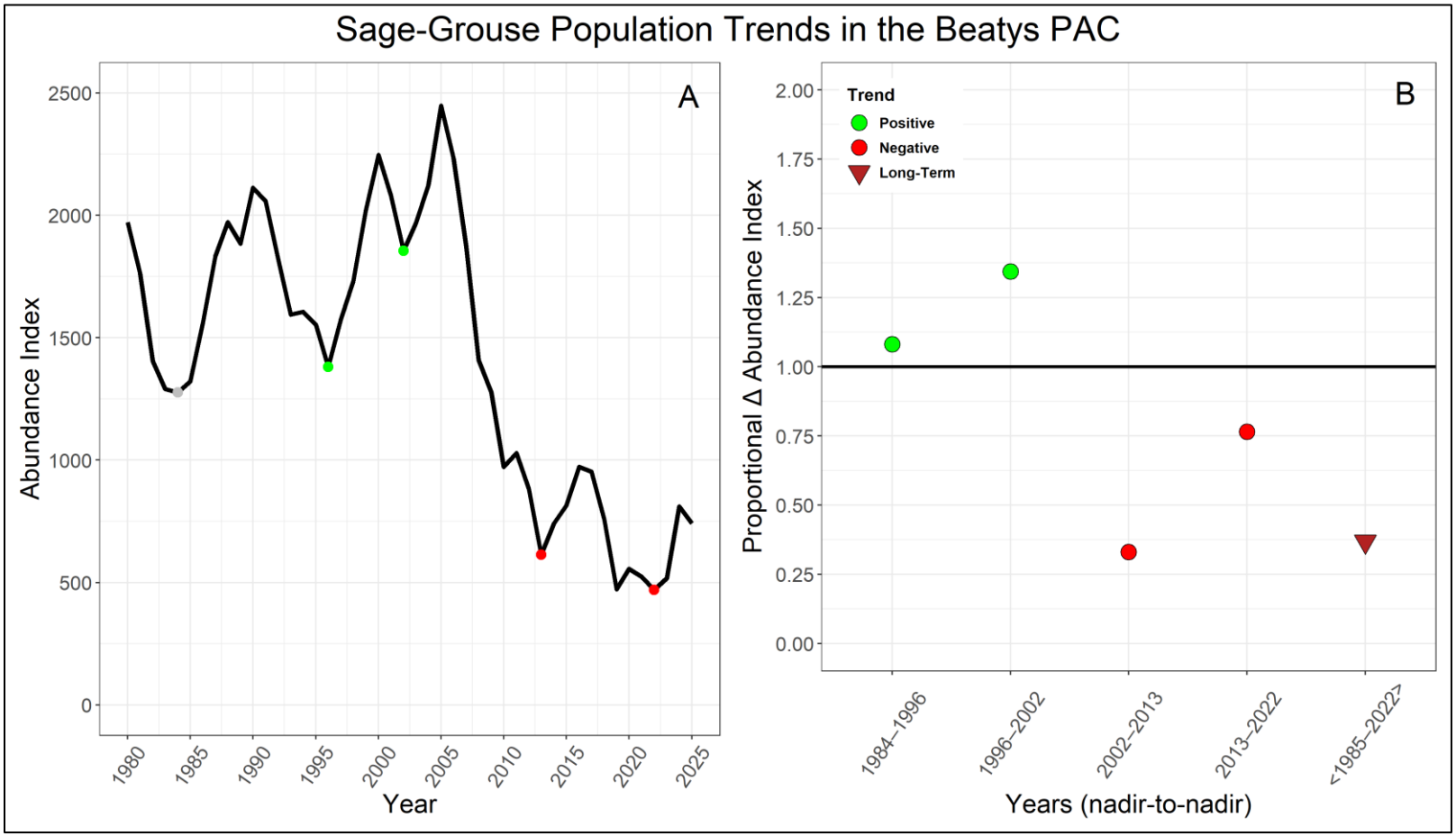


Figure A1. 2. Sage-grouse population trends in the Beatys PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Brothers PAC

Nadirs of the population cycle in the Brothers PAC occurred during the years 1985, 1996, 2003, 2009, and 2019 (Figure A1.3A). The Brothers PAC experienced an increasing population trend during the period of 2003–2009, and declining trends during all other periods (Figure A1.3B). The short-term population trend (1 oscillation) was -56.9% during 2009–2019, the mid-term population trend (2 oscillations) was -37.8% during 2003–2019, and the long-term population trend (4 oscillations) was -76.7% during 1985–2019 (Table A1.1).

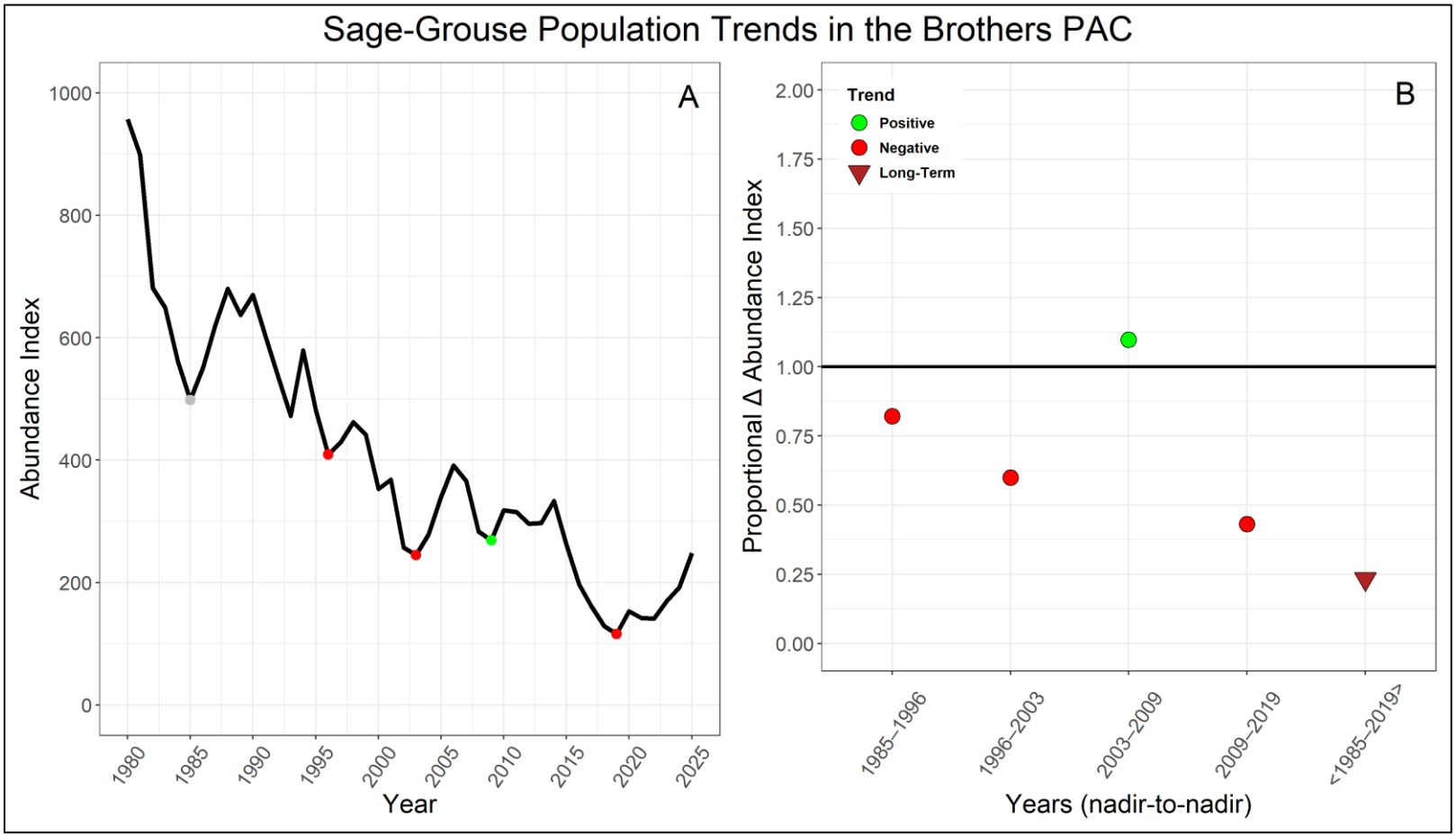


Figure A1. 3. Sage-grouse population trends in the Brothers PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Bully Creek PAC

Nadirs of the population cycle in the Bully Creek PAC occurred during the years 1985, 1993, 2001, 2008, 2014, and 2020 (Figure A1.4A). The Bully Creek PAC experienced an increasing population trend during the periods of 1985–1993, 1993–2001, and 2001–2008, and declining trends during the two most recent periods (Figure A1.4B). The short-term population trend (1 oscillation) was -55.7% during 2014–2020, the mid-term population trend (3 oscillations) was -37.8% during 2001–2020, and the long-term population trend (5 oscillations) was -1.6% during 1985–2020 (Table A1.1).

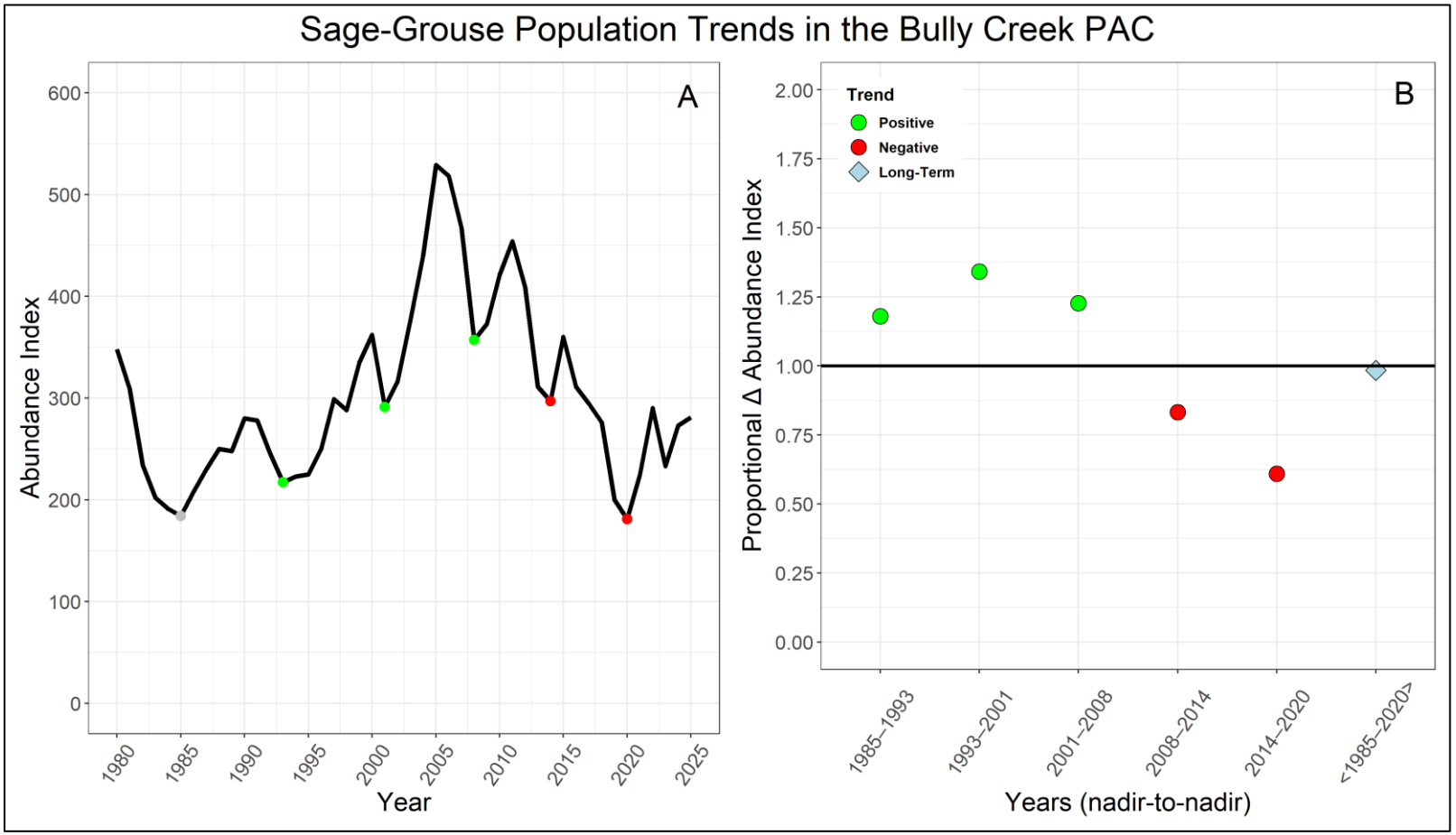


Figure A1. 4. Sage-grouse population trends in the Bully Creek PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Burns PAC

Nadirs of the population cycle in the Burns PAC occurred during the years 1985, 1996, 2001, 2009, 2014, and 2021 (Figure A1.5A). The Burns PAC experienced an increasing population trend during the period of 1996–2001, and declining trends during all other periods (Figure A1.5B). The short-term population trend (1 oscillation) was -35.1% during 2014–2021, the mid-term population trend (3 oscillations) was -46.7% during 2001–2020, and the long-term population trend (5 oscillations) was -52.0% during 1985–2021 (Table A1.1).

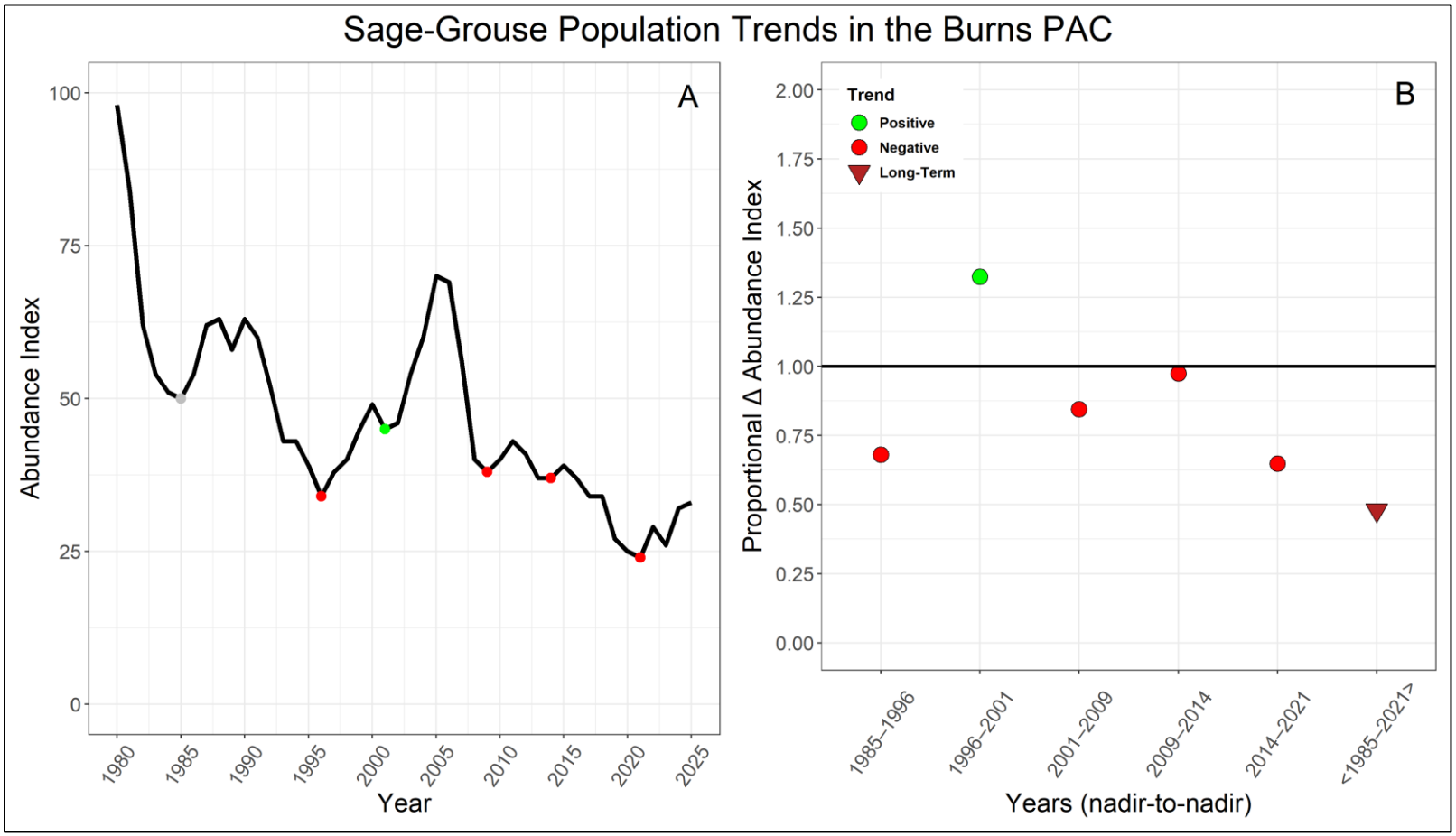


Figure A1. 5. Sage-grouse population trends in the Burns PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Cow Lakes PAC

Nadirs of the population cycle in the Cow Lakes PAC occurred during the years 1985, 1995, 2008, 2013, and 2023 (Figure A1.6A). The Cow Lakes PAC experienced declining population trends during all periods (Figure A1.6B). The short-term population trend (1 oscillation) was -25.6% during 2013–2023, the mid-term population trend (3 oscillations) was -62.0% during 1995–2023, and the long-term population trend (4 oscillations) was -79.0% during 1985–2023 (Table A1.1).

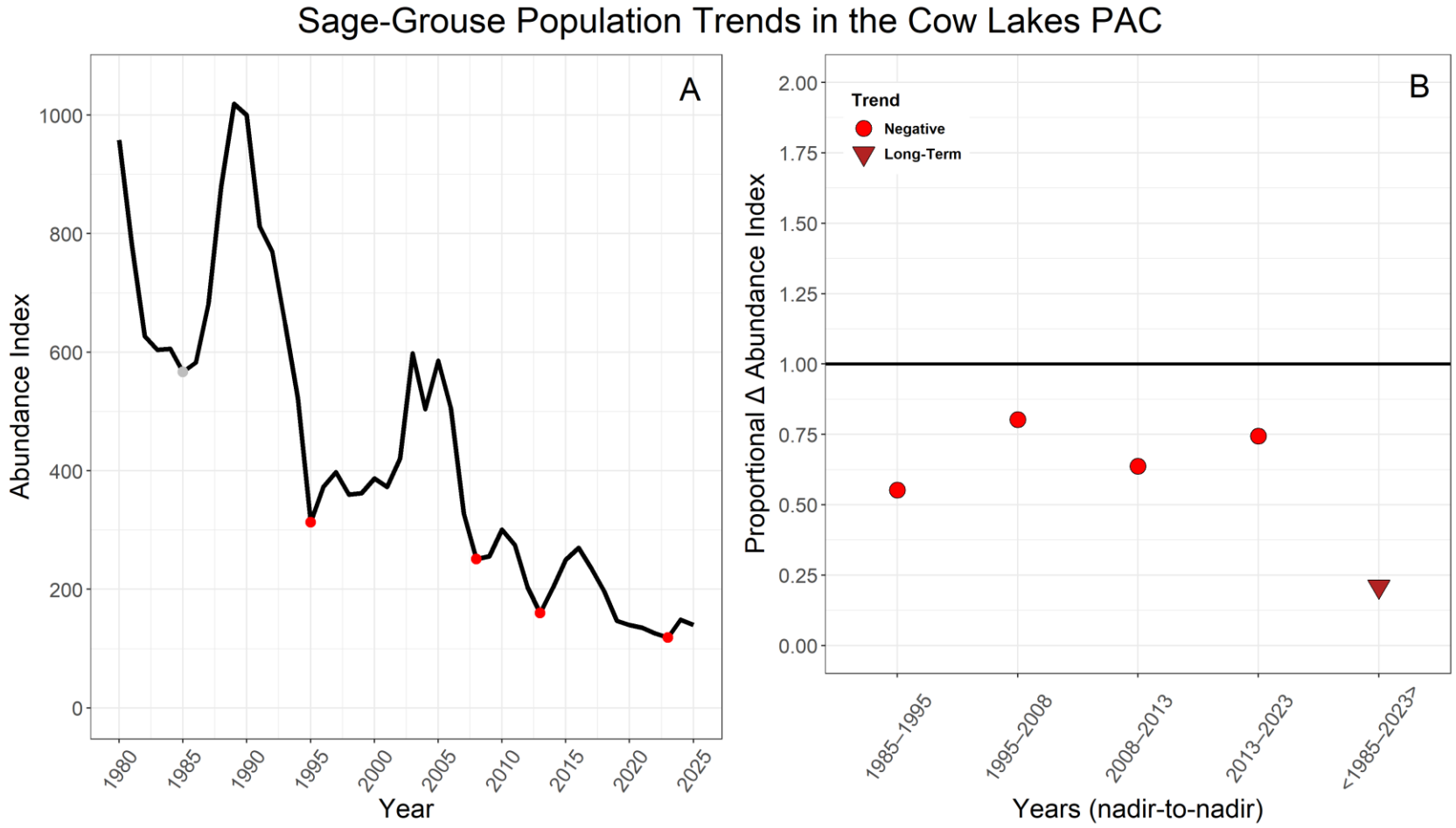


Figure A1. 6. Sage-grouse population trends in the Cow Lakes PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Cow Valley PAC

Nadirs of the population cycle in the Cow Valley PAC occurred during the years 1985, 1995, 2001, 2008, and 2017 (Figure A1.7A). The Cow Valley PAC experienced an increasing population trend during the periods of 1985–1995, 1995–2001, and 2001–2008, and a declining trend during the most recent period (Figure A1.7B). The short-term population trend (1 oscillation) was -36.7% during 2008–2017, the mid-term population trend (2 oscillations) was -21.4% during 2001–2017, and the long-term population trend (4 oscillations) was +15.2% during 1985–2017 (Table A1.1).

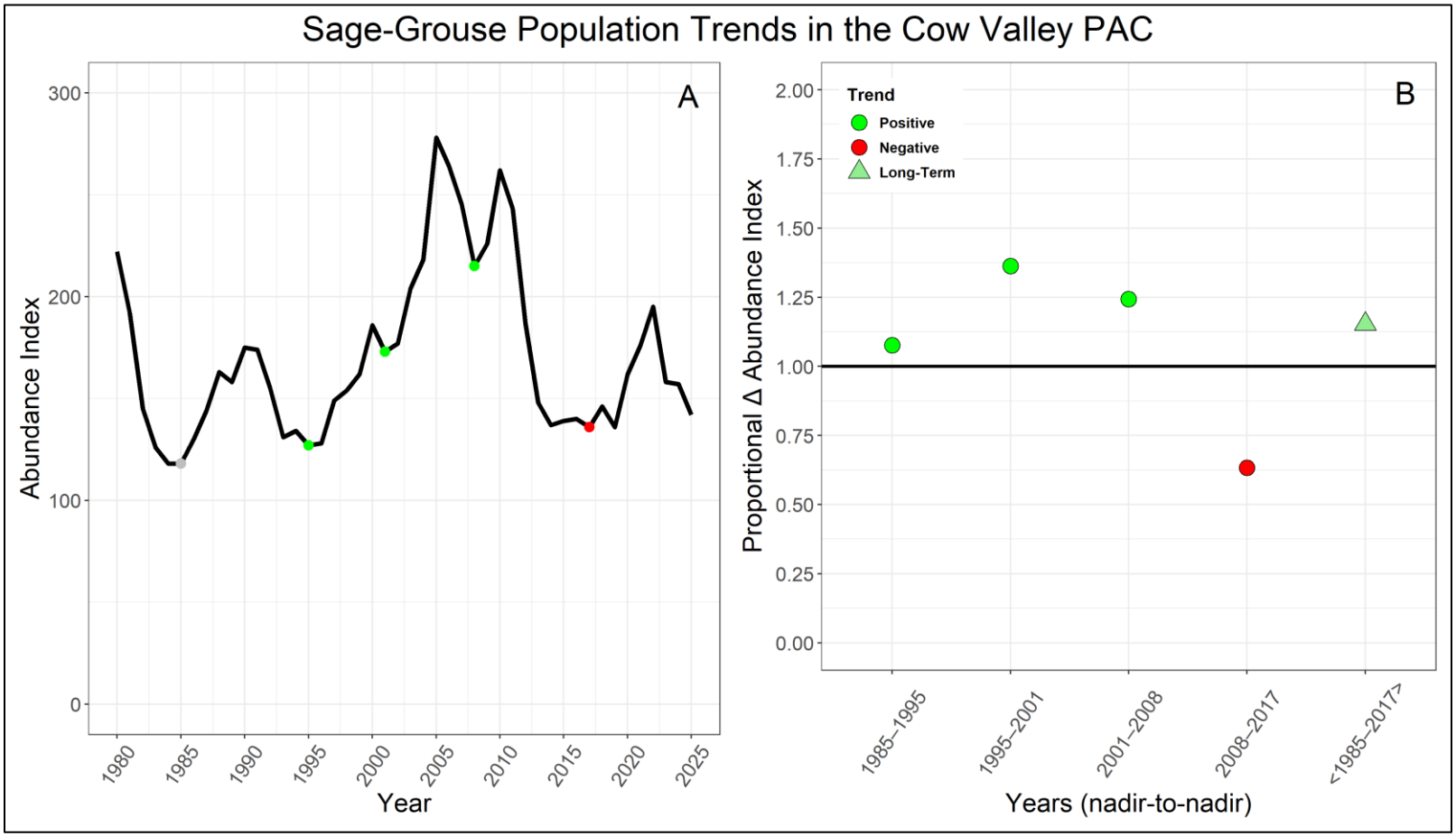


Figure A1. 7. Sage-grouse population trends in the Cow Valley PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Crowley PAC

Nadirs of the population cycle in the Crowley PAC occurred during the years 1984, 1996, 2002, 2008, 2013, and 2023 (Figure A1.8A). The Crowley PAC experienced an increasing population trend during the period of 2008–2013, and declining trends during all other periods (Figure A1.8B). The short-term population trend (1 oscillation) was -14.6% during 2013–2023, the mid-term population trend (3 oscillations) was -34.8% during 2002–2023, and the long-term population trend (5 oscillations) was -38.9% during 1984–2023 (Table A1.1).

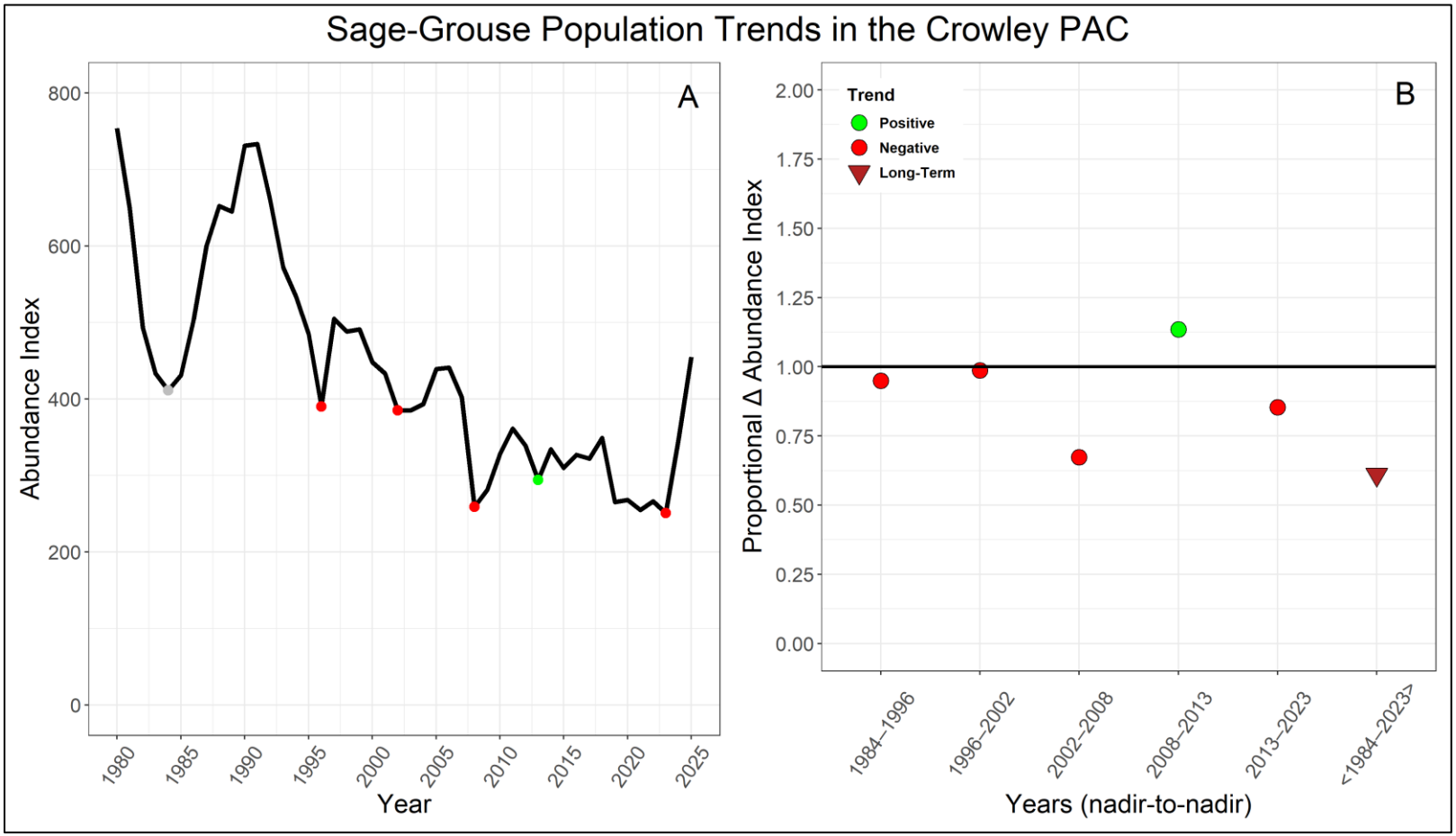


Figure A1. 8. Sage-grouse population trends in the Crowley PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Diablo PAC

Nadirs of the population cycle in the Diablos PAC occurred during the years 1985, 1996, 2002, 2009, 2013, and 2023 (Figure A1.9A). The Diablo PAC experienced an increasing population trend during the periods of 1996–2002 and 2009–2013, and declining trends during all other periods (Figure A1.9B). The short-term population trend (1 oscillation) was -48.0% during 2013–2023, the mid-term population trend (3 oscillations) was -41.9% during 2002–2023, and the long-term population trend (5 oscillations) was -65.8% during 1985–2023 (Table A1.1).

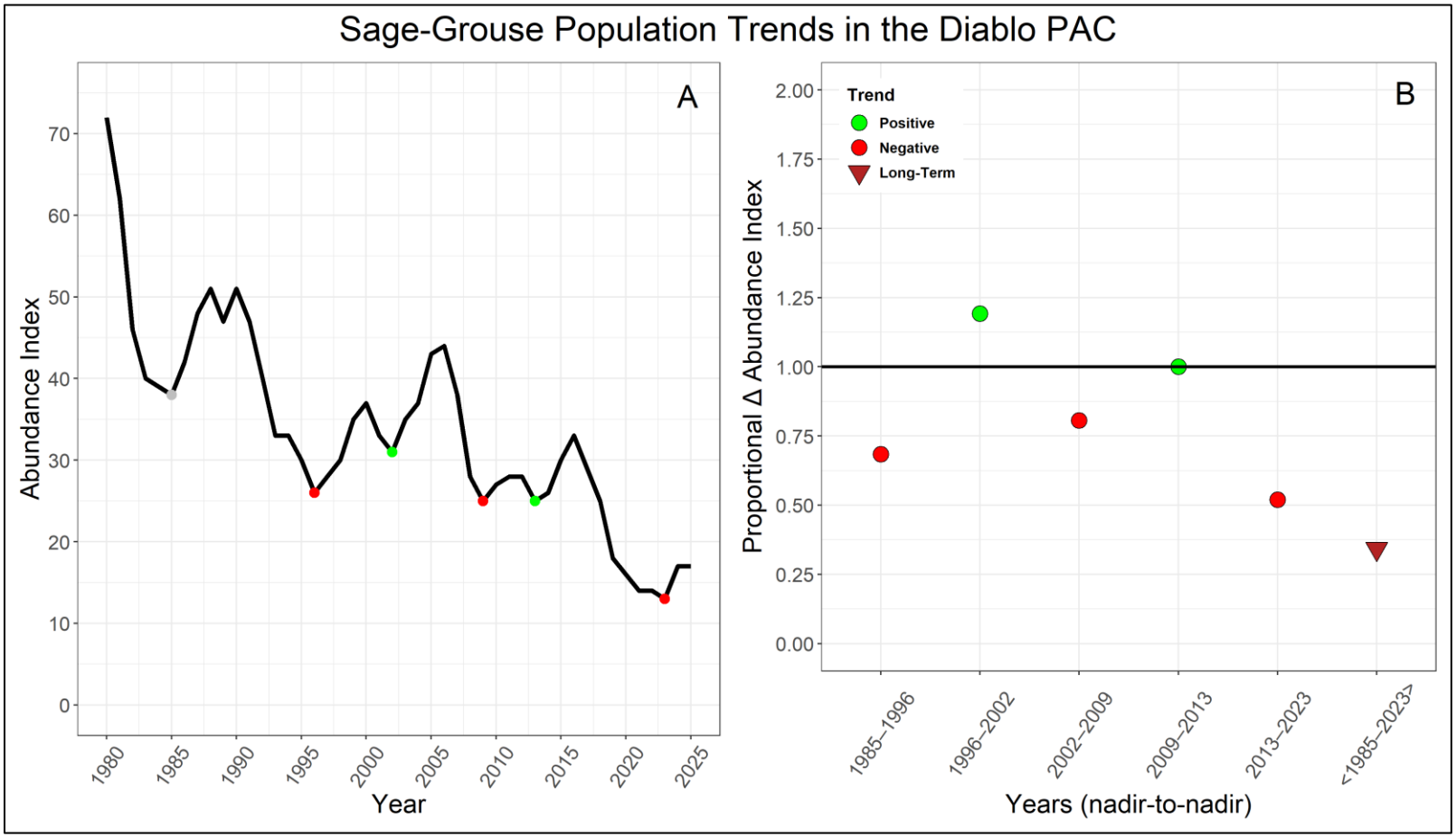


Figure A1. 9. Sage-grouse population trends in the Diablo PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Drewsey PAC

Nadirs of the population cycle in the Drewsey PAC occurred during the years 1985, 1996, 2002, 2008, 2013, and 2019 (Figure A1.10A). The Drewsey PAC experienced an increasing population trend during the period of 2002–2008, and declining trends during all other periods (Figure A1.10B). The short-term population trend (1 oscillation) was -30.9% during 2013–2019, the mid-term population trend (3 oscillations) was -37.9% during 2002–2019, and the long-term population trend (5 oscillations) was -61.9% during 1985–2019 (Table A1.1).

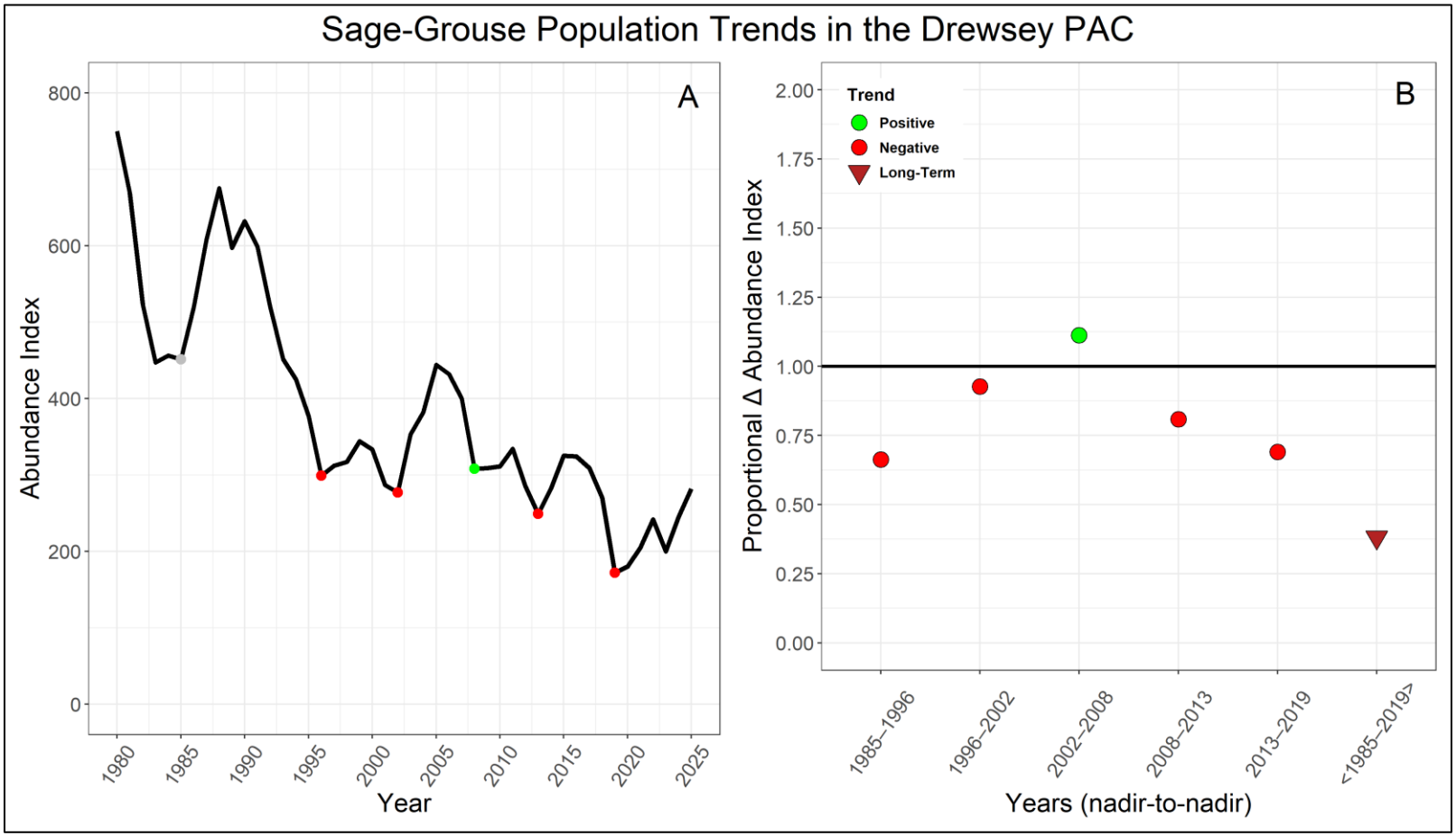


Figure A1. 10. Sage-grouse population trends in the Drewsey PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Dry Valley – Jack Mountain PAC

Nadirs of the population cycle in the Dry Valley – Jack Mountain PAC occurred during years 1984, 1996, 2002, 2009, 2015, and 2019 (Figure A1.11A). The Dry Valley – Jack Mountain PAC experienced an increasing population trend during the period of 1996–2002 and 2015–2019, and declining trends during all other periods (Figure A1.11B). The short-term population trend (1 oscillation) was +1.4% during 2015–2019, the mid-term population trend (3 oscillations) was -69.3% during 2002–2019, and the long-term population trend (5 oscillations) was -82.4% during 1984–2019 (Table A1.1).

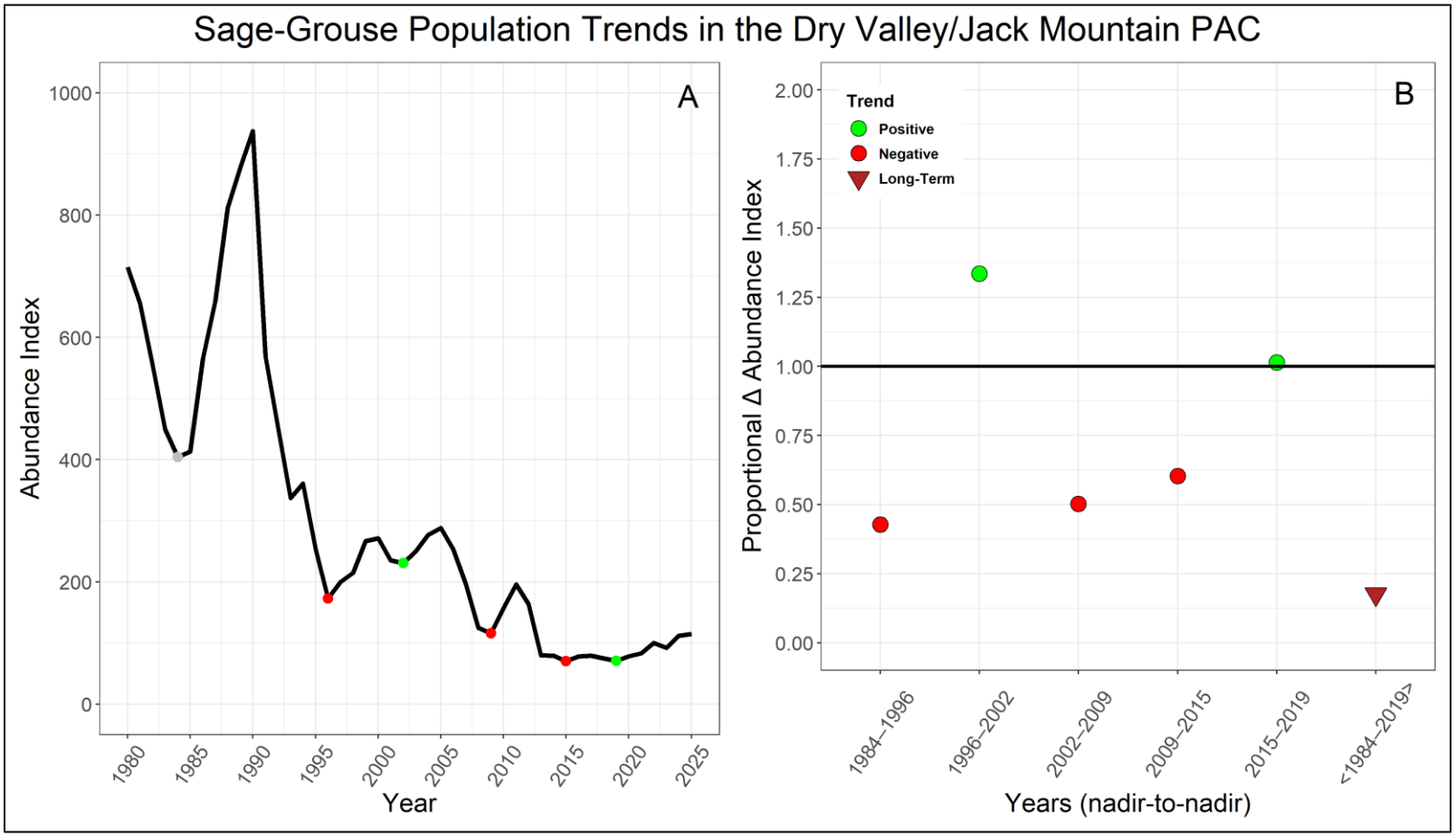


Figure A1. 11. Sage-grouse population trends in the Dry Valley – Jack Mountain PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Juniper Mountain PAC

Nadirs of the population cycle in the Juniper Mountain PAC occurred during the years 1984, 1996, 2009, 2013, and 2019 (Figure A1.12A). The Juniper Mountain PAC experienced an increasing population trend during the periods of 1996–2009 and 2013–2019, and declining trends during all other periods (Figure A1.12B). The short-term population trend (1 oscillation) was +11.6% during 2013–2019, the mid-term population trend (3 oscillations) was +50.0% during 1996–2019, and the long-term population trend (4 oscillations) was +4.3% during 1984–2019 (Table A1.1).

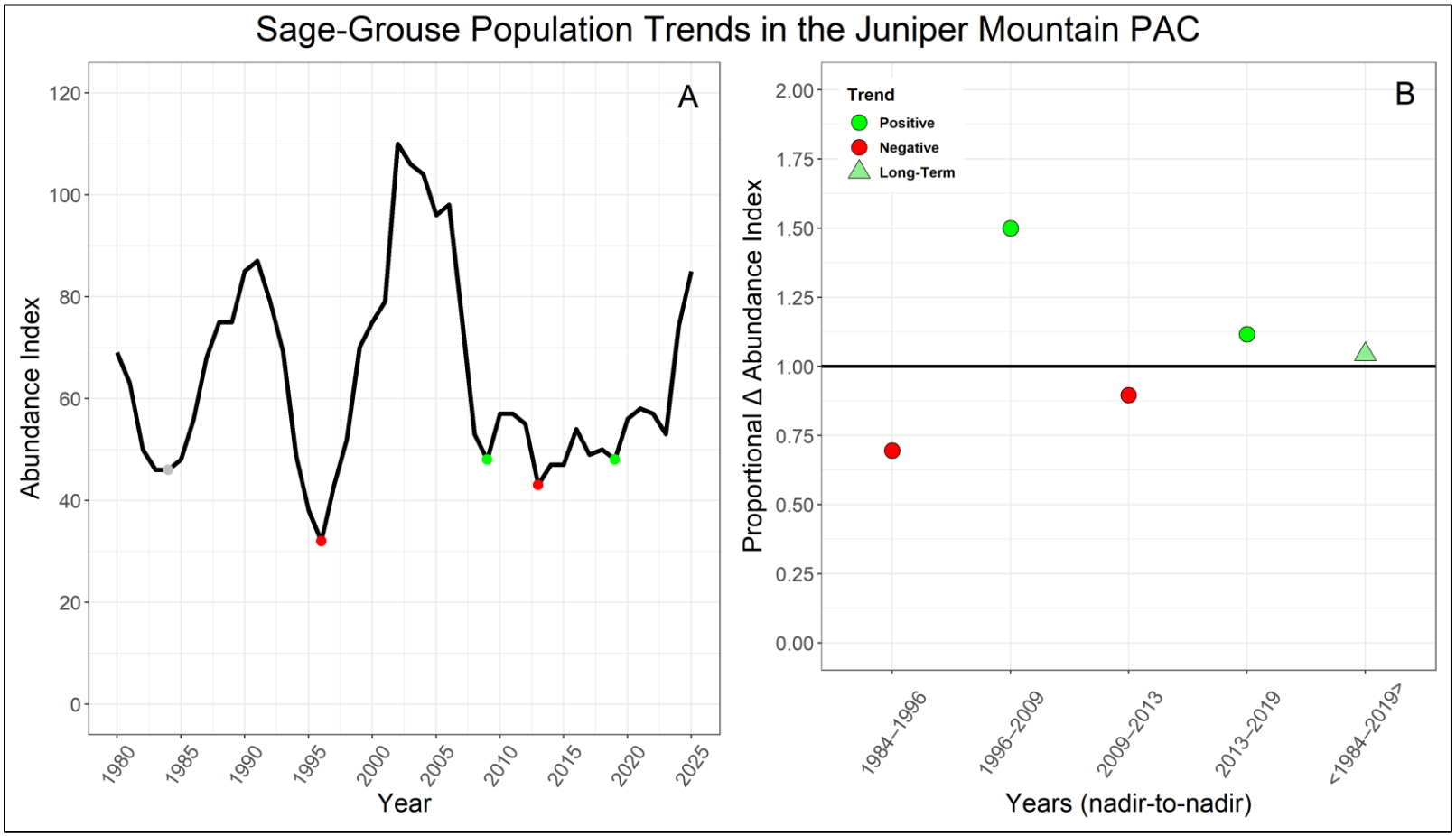


Figure A1. 12. Sage-grouse population trends in the Juniper Mountain PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Louse Canyon PAC

Nadirs of the population cycle in the Louse Canyon PAC occurred during the years 1985, 1996, 2013, and 2019 (Figure A1.13A). The Louse Canyon PAC experienced an increasing population trend during the period of 1996–2013, and declining trends during all time periods (Figure A1.13B). The short-term population trend (1 oscillation) was -28.4% during 2013–2019, the mid-term population trend (2 oscillations) was -4.6% during 1996–2019, and the long-term population trend (3 oscillations) was -19.4% during 1985–2019 (Table A1.1). Note, unlike most PACs, the abundance data do not suggest the Louse Canyon PAC experienced a population nadir during the 2000–2010 period.

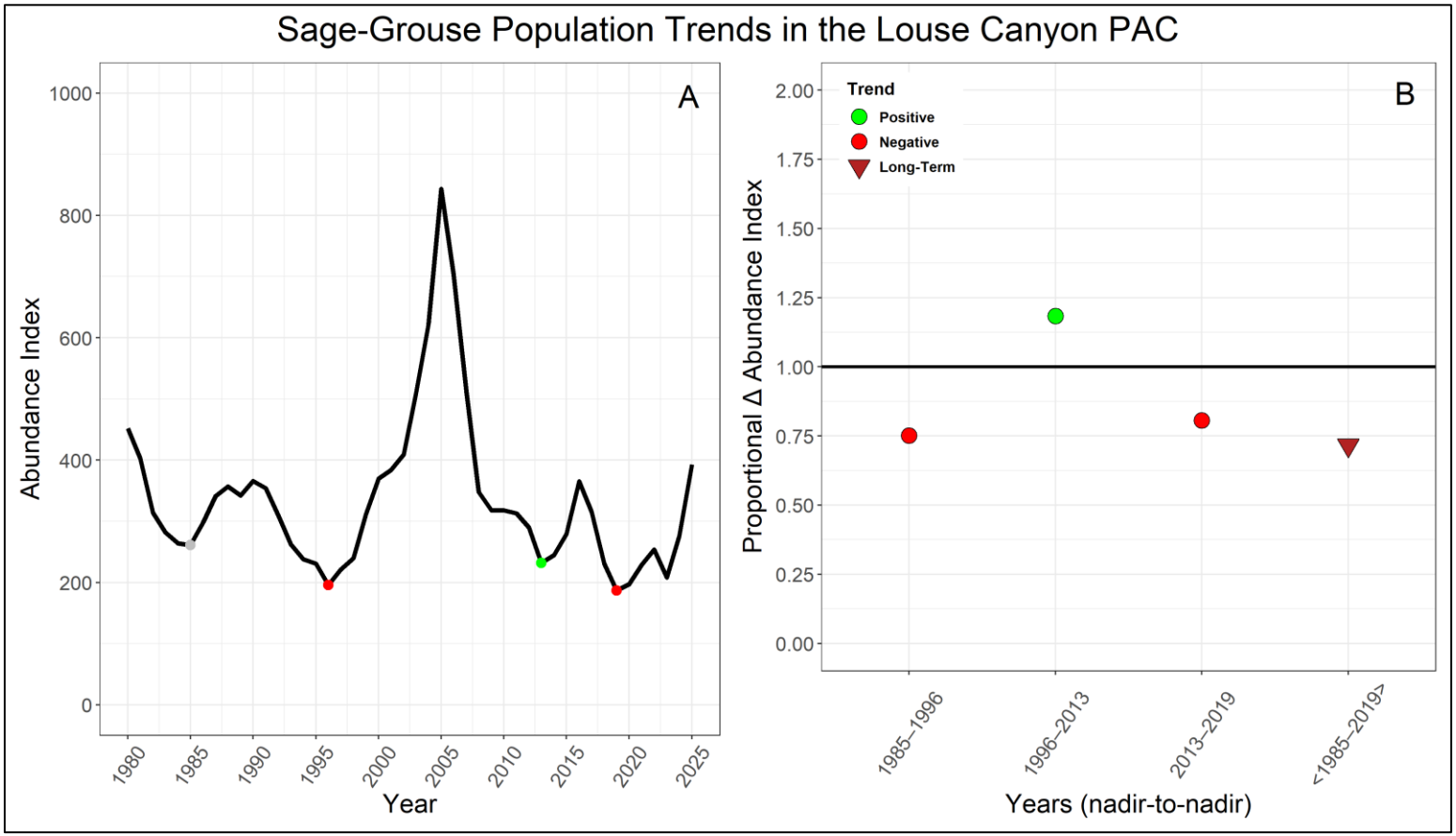


Figure A1. 13. Sage-grouse population trends in the Louse Canyon PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

North Wagontire PAC

Nadirs of the population cycle in the North Wagontire PAC occurred during the years 1985, 1993, 2002, 2013, and 2023 (Figure A1.14A). The North Wagontire PAC experienced declining population trends during all time periods (Figure A1.14B). The short-term population trend (1 oscillation) was -32.7% during 2013–2023, the mid-term population trend (2 oscillations) was -47.2% during 2002–2023, and the long-term population trend (4 oscillations) was -68.7% during 1985–2023 (Table A1.1).

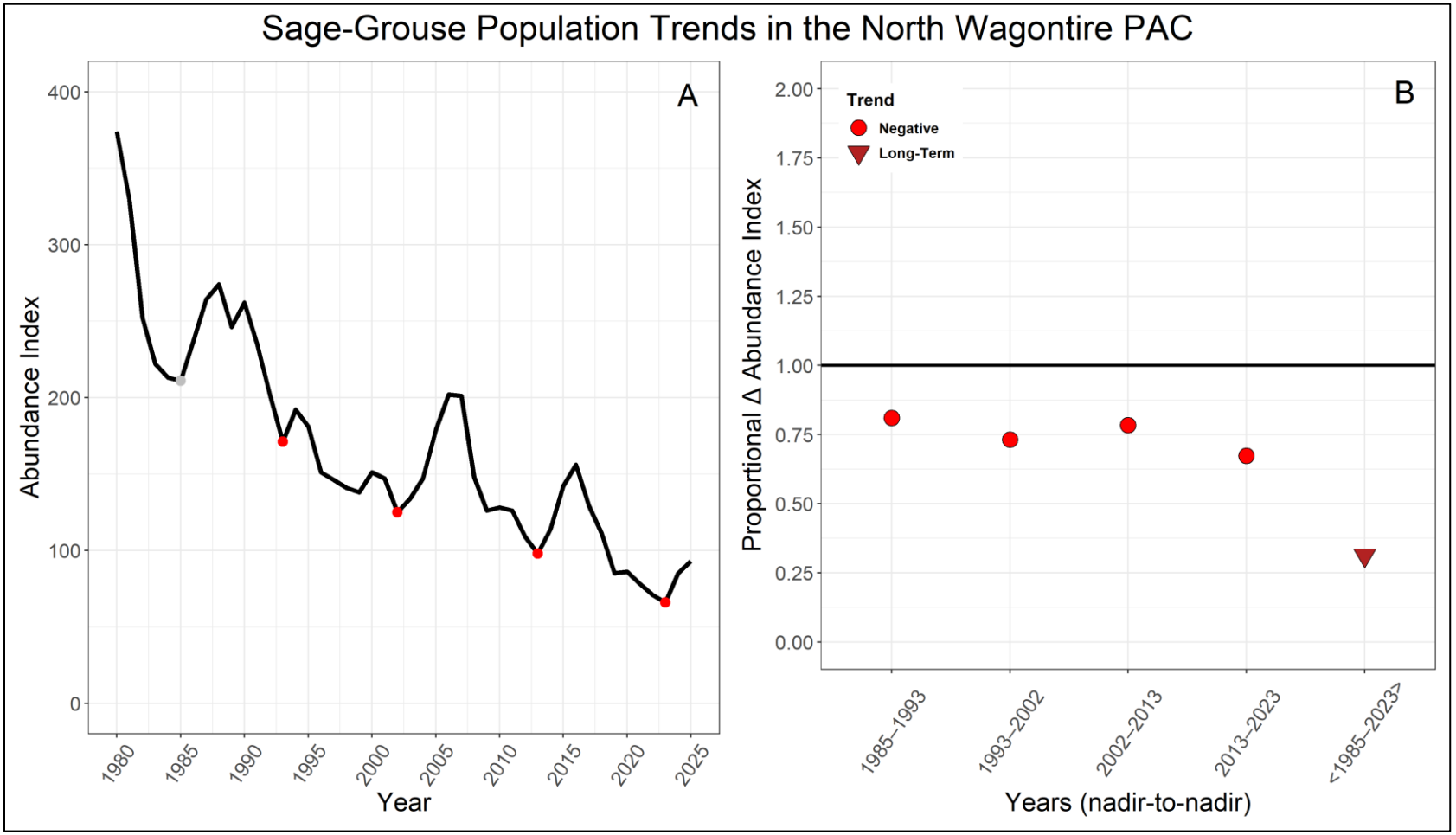


Figure A1. 14. Sage-grouse population trends in the North Wagontire PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Paulina PAC

Nadirs of the population cycle in the Paulina PAC occurred during the years 1984, 1996, 2001, 2009, 2013, and 2023 (Figure A1.15A). The Paulina PAC experienced a stable population trend during the period of 1984–1996, an increasing trend during 2009–2013, and declining population trends during all time periods (Figure A1.15B). The short-term population trend (1 oscillation) was -16.7% during 2013–2023, the mid-term population trend (3 oscillations) was -50.1% during 2001–2023, and the long-term population trend (5 oscillations) was -50.9% during 1984–2023 (Table A1.1).

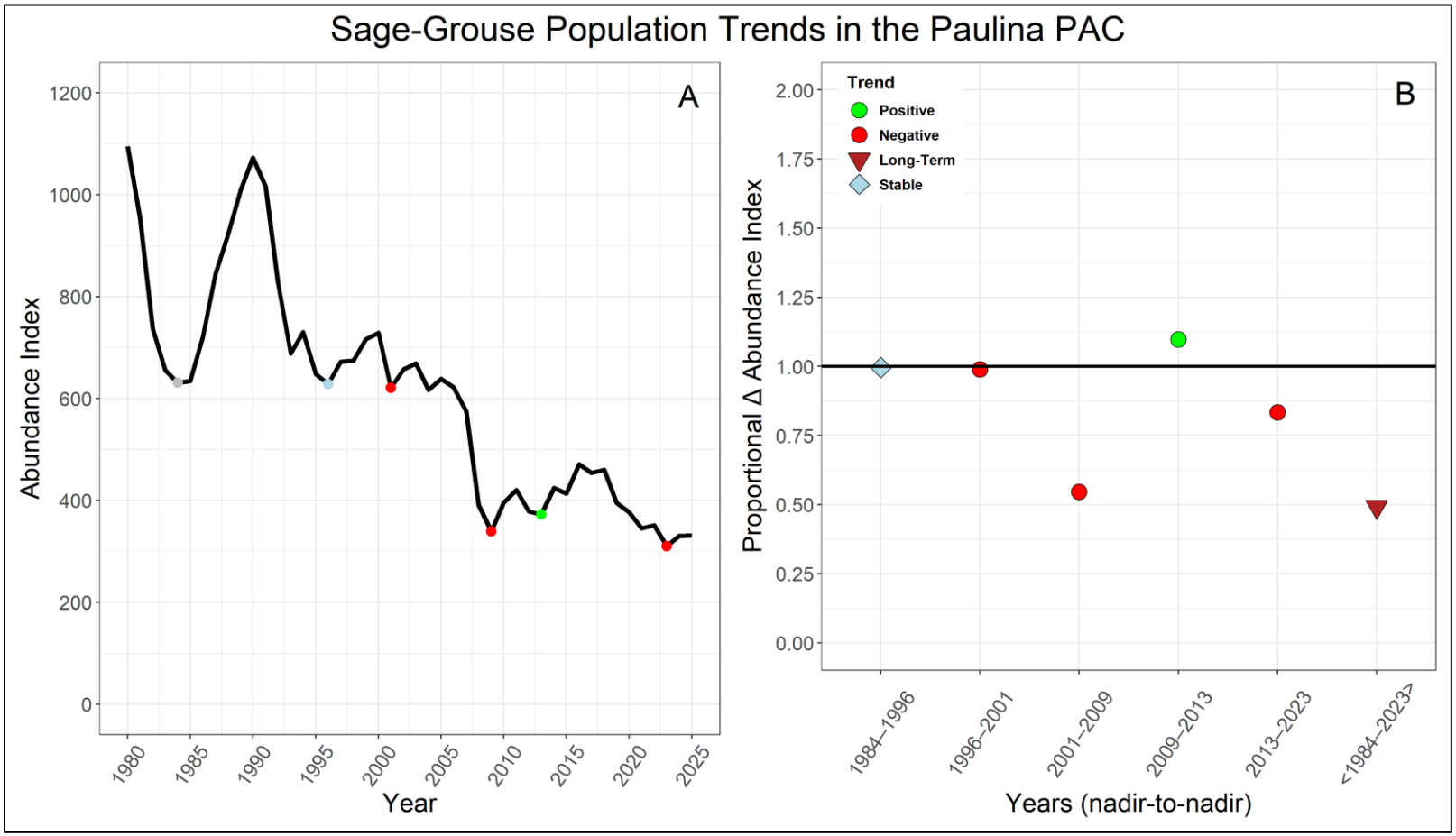


Figure A1. 15. Sage-grouse population trends in the Paulina PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Pueblos PAC

Nadirs of the population cycle in the Pueblos PAC occurred during the years 1985, 1996, 2009, 2013, 2019, and 2022 (Figure A1.16A). The Pueblos PAC experienced increasing population trends during the periods of 1996–2009 and 2009–2013, and declining trends during all other periods (Figure A1.16B). The short-term population trend was -6.3% during 2019–2022 (1 oscillation) and -28.1% during 2013–2022 (2 oscillations). The mid-term population trend (3 oscillations) was -23.2% during 2009–2022, and the long-term population trend (5 oscillations) was -19.7% during 1985–2022 (Table A1.1).

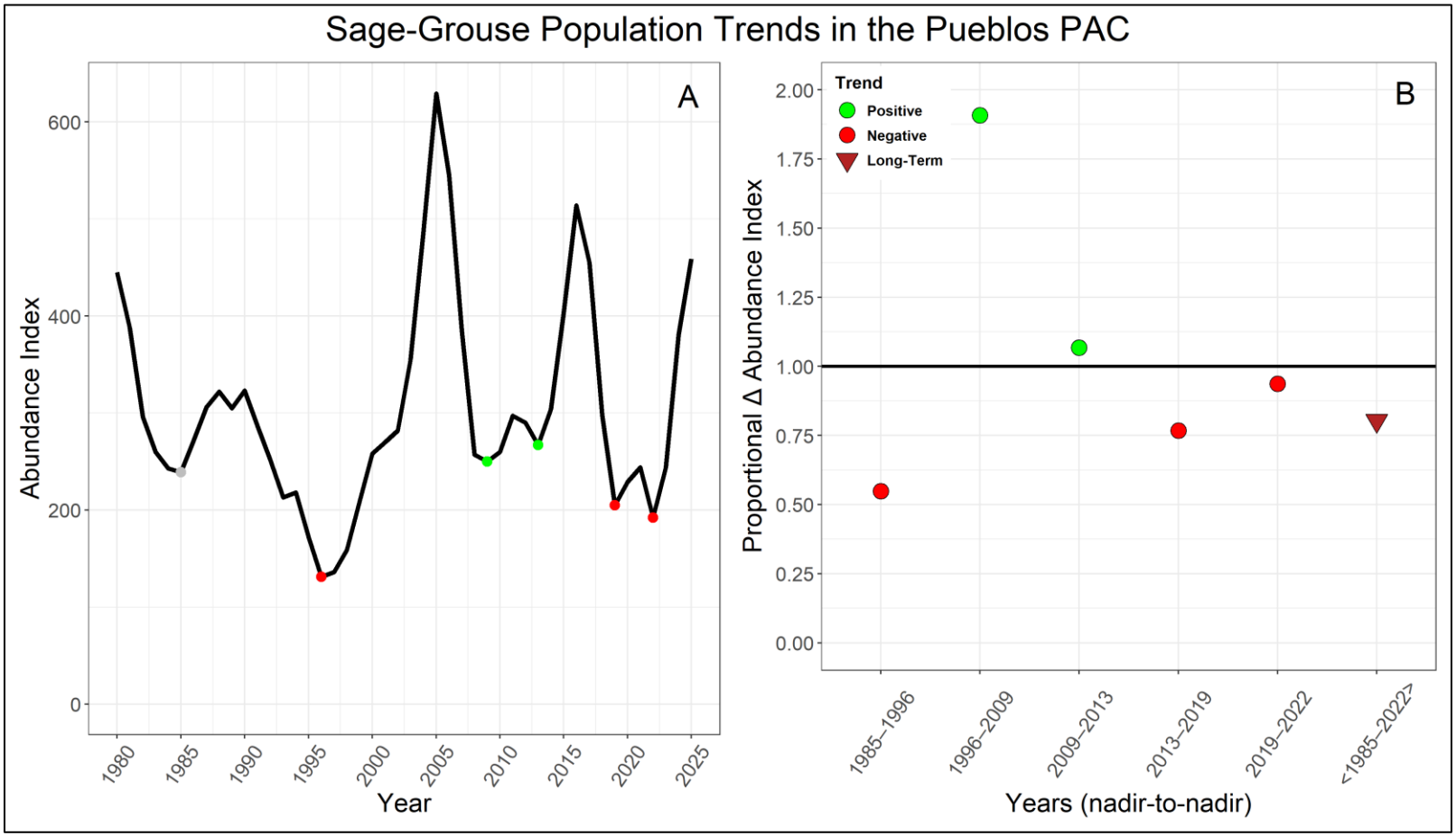


Figure A1. 16. Sage-grouse population trends in the Pueblos PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Saddle Butte PAC

Nadirs of the population cycle in the Saddle Butte PAC occurred during the years 1985, 1996, 2002, 2009, 2013, and 2020 (Figure A1.17A). The Saddle Butte PAC experienced an increasing population trend during the periods of 1996–2002, 2009–2013, and 2013–2020, and declining trends during all other periods (Figure A1.17B). The short-term population trend (1 oscillation) was +63.0% during 2013–2020, the mid-term population trend (3 oscillations) was +63.0% during 2002–2020, and the long-term population trend (5 oscillations) was +41.9% during 1985–2020 (Table A1.1).

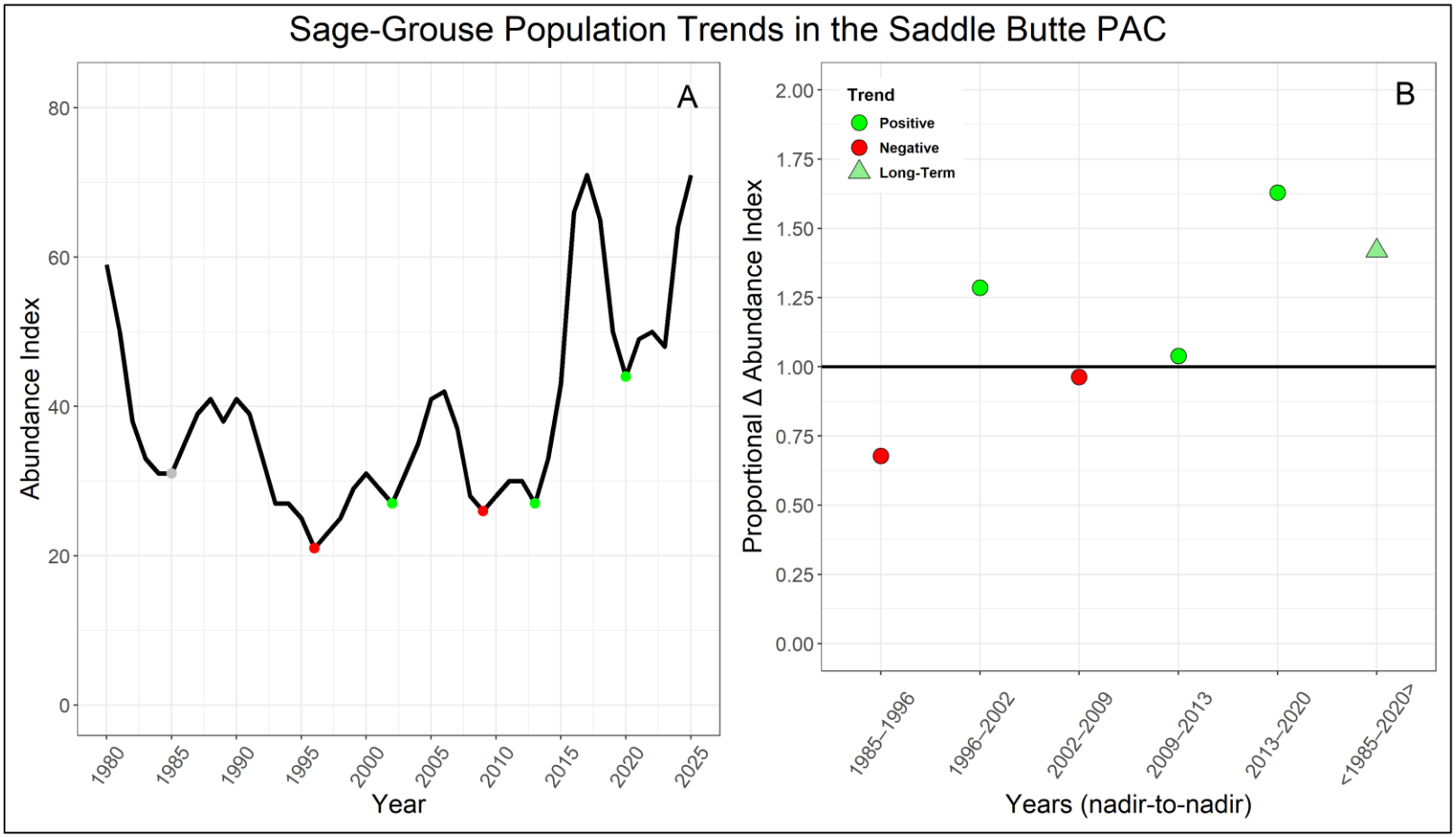


Figure A1. 17. Sage-grouse population trends in the Saddle Butte PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Sheepshead PAC

Nadirs of the population cycle in the Sheepshead PAC occurred during the years 1985, 1996, 2008, and 2023 (Figure A1.18A). The Sheepshead PAC experienced an increasing population trend during the period of 2008–2023, and declining trends during all other periods (Figure A1.18B). The short-term population trend (1 oscillation) was +23.5% during 2008–2023, the mid-term population trend (2 oscillations) was -25.0% during 1996–2023, and the long-term population trend (3 oscillations) was -44.7% during 1985–2023 (Table A1.1). Note, unlike most PACs, the abundance data do not suggest the Sheepshead PAC experienced a population nadir during the 2008–2023 period.

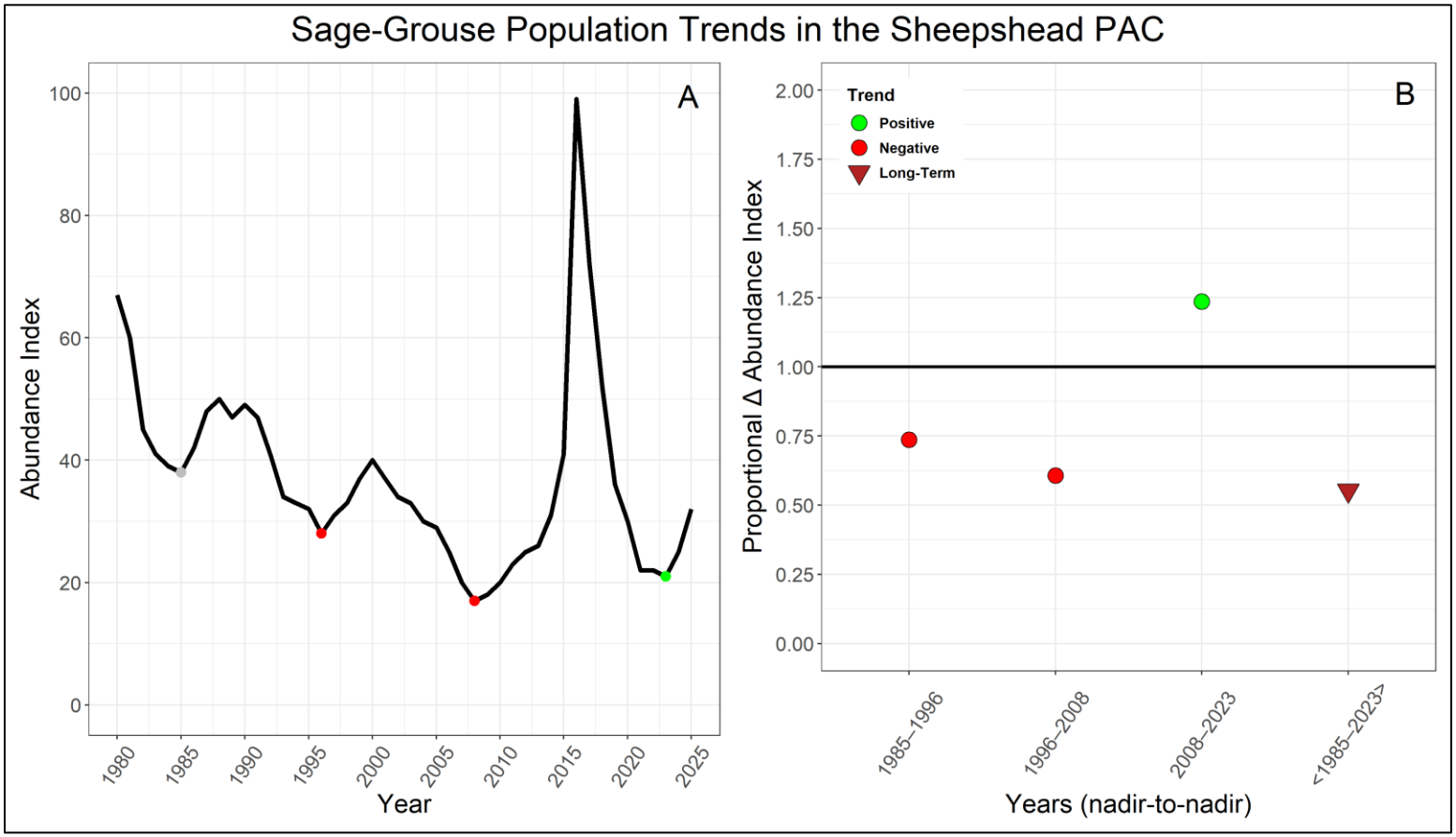


Figure A1. 18. Sage-grouse population trends in the Sheepshead PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Soldier Creek PAC

Nadirs of the population cycle in the Soldier Creek PAC occurred during the years 1984, 1995, 2008, 2013, and 2020 (Figure A1.19A). The Soldier Creek PAC experienced declining population trends during all time periods (Figure A1.19B). The short-term population trend (1 oscillation) was -39.1% during 2013–2020, the mid-term population trend (3 oscillations) was -45.4% during 1995–2020, and the long-term population trend (4 oscillations) was -51.4% during 1984–2020 (Table A1.1).

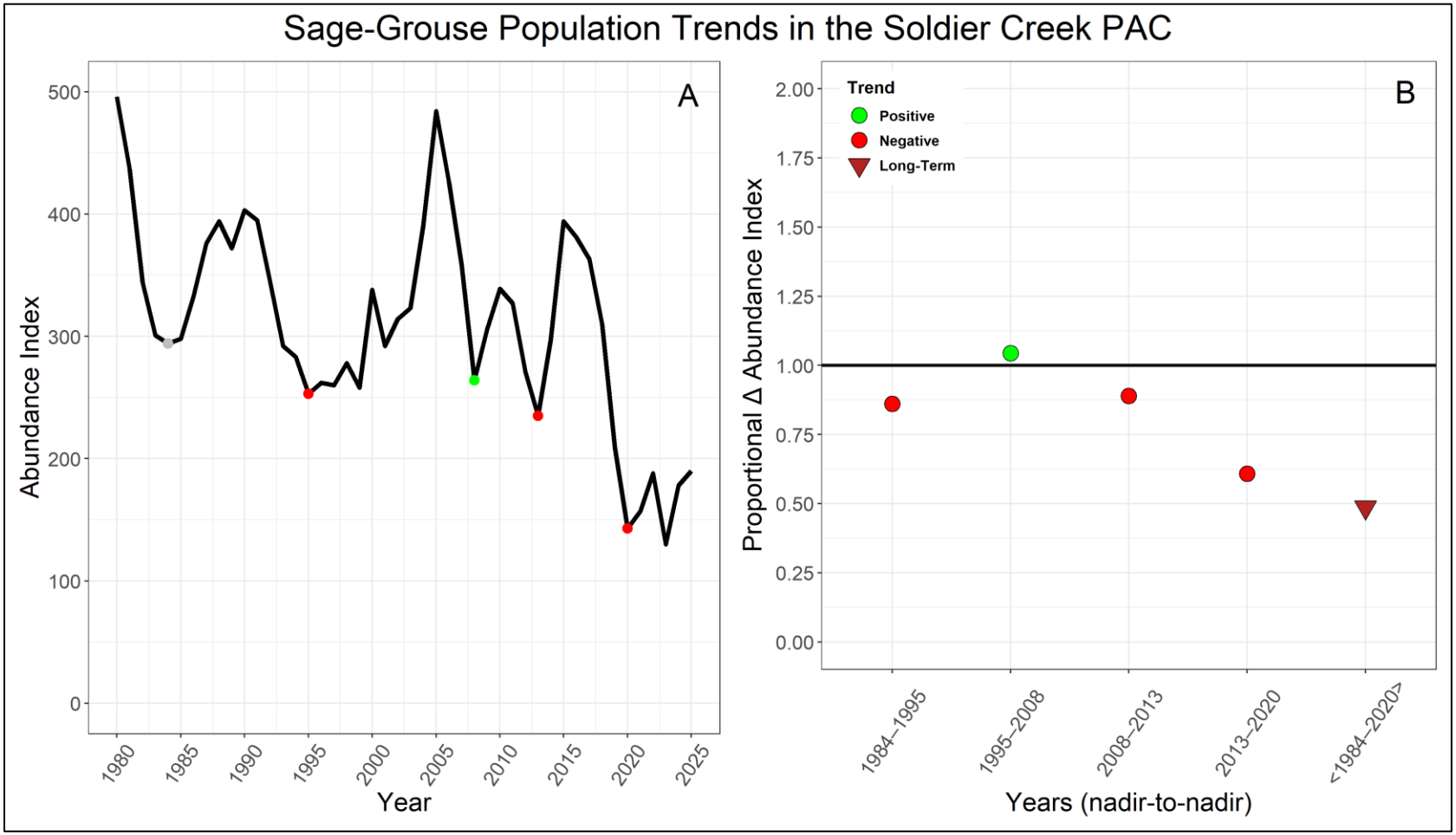


Figure A1. 19. Sage-grouse population trends in the Soldier Creek PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Steens PAC

Nadirs of the population cycle in the Steens PAC occurred during the years 1985, 1996, 2008, 2013, and 2020 (Figure A1.20A). The Steens PAC experienced an increasing population trend during the period of 1996–2008, a stable population trend during 2008–2013, and declining trends during all other periods (Figure A1.20B). The short-term population trend (1 oscillation) was -9.0% during 2013–2020, the mid-term population trend (3 oscillations) was +6.3% during 1996–2020, and the long-term population trend (4 oscillations) was -31.3% during 1985–2020 (Table A1.1).

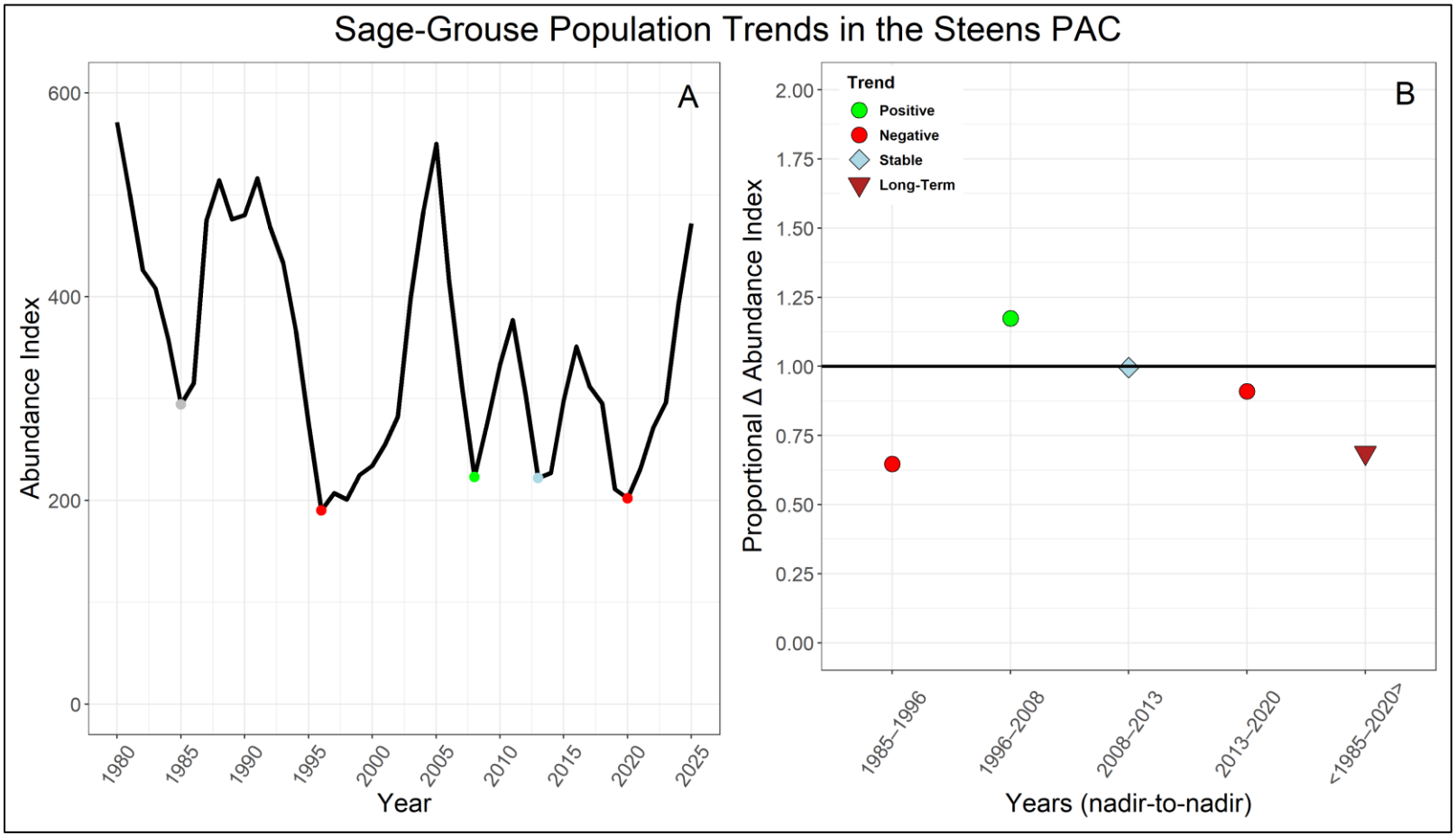


Figure A1. 20. Sage-grouse population trends in the Steens PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Trout Creeks PAC

Nadirs of the population cycle in the Trout Creeks PAC occurred during the years 1985, 1996, 2002, 2008, 2013, and 2021 (Figure A1.21A). The Trout Creeks PAC experienced increasing population trends during the periods of 1996–2002, 2002–2008, and 2013–2021, and declining trends during all other periods (Figure A1.21B). The short-term population trend (1 oscillation) was +15.1% during 2013–2021, the mid-term population trend (3 oscillations) was -6.6% during 2002–2021, and the long-term population trend (5 oscillations) was -28.4% during 1985–2021 (Table A1.1).

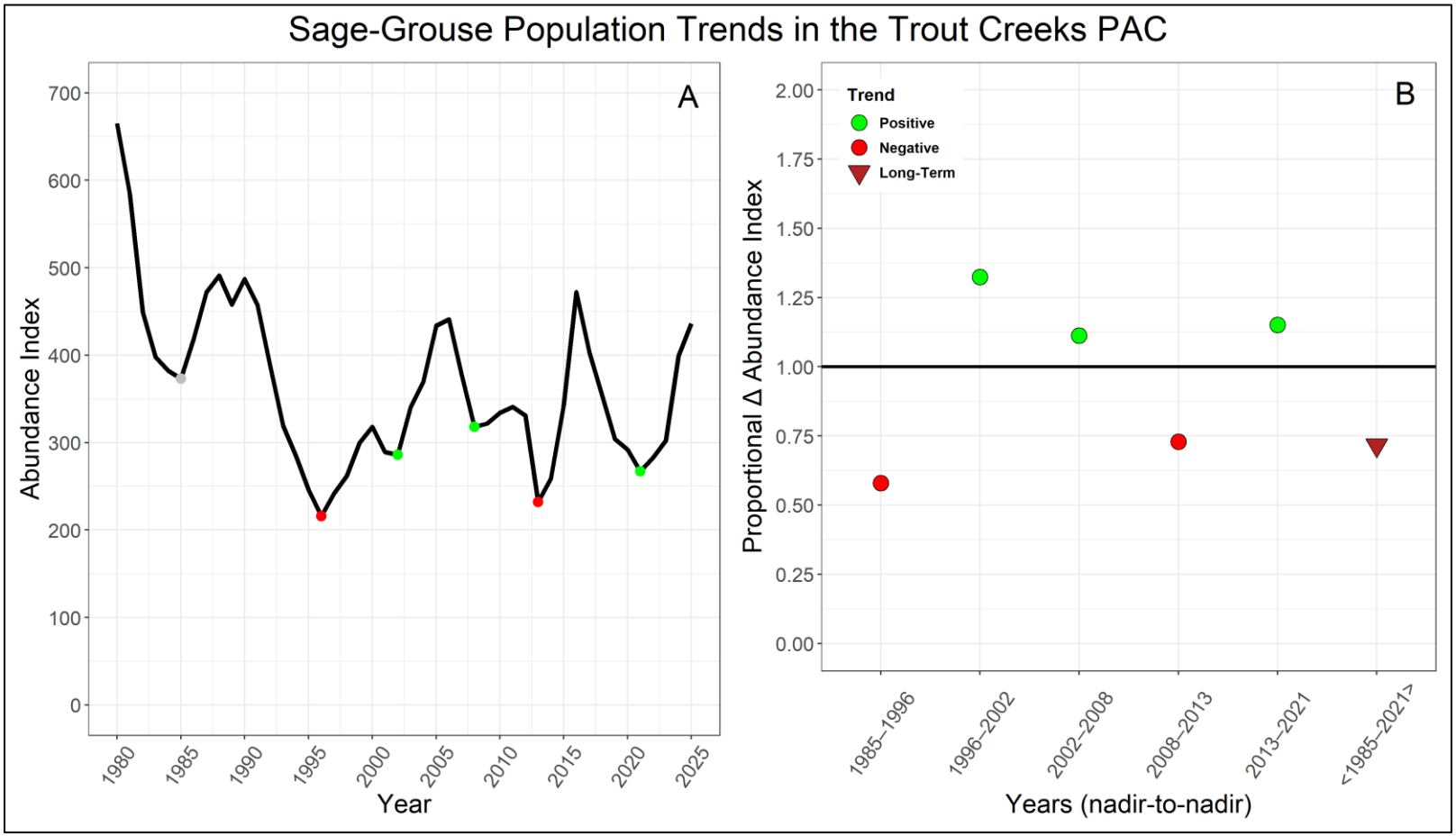


Figure A1. 21. Sage-grouse population trends in the Trout Creeks PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Tucker Hill PAC

Nadirs of the population cycle in the Tucker Hill PAC occurred during the years 1984, 1997, 2001, 2009, 2013, and 2023 (Figure A1.22A). The Tucker Hill PAC experienced an increasing population trend during the periods of 1984–1997 and 2001–2009, and declining trends during all other periods (Figure A1.22B). The short-term population trend (1 oscillation) was -7.1% during 2013–2023, the mid-term population trend (3 oscillations) was +8.3% during 2001–2023, and the long-term population trend (5 oscillations) was +105.3% during 1984–2023 (Table A1.1).

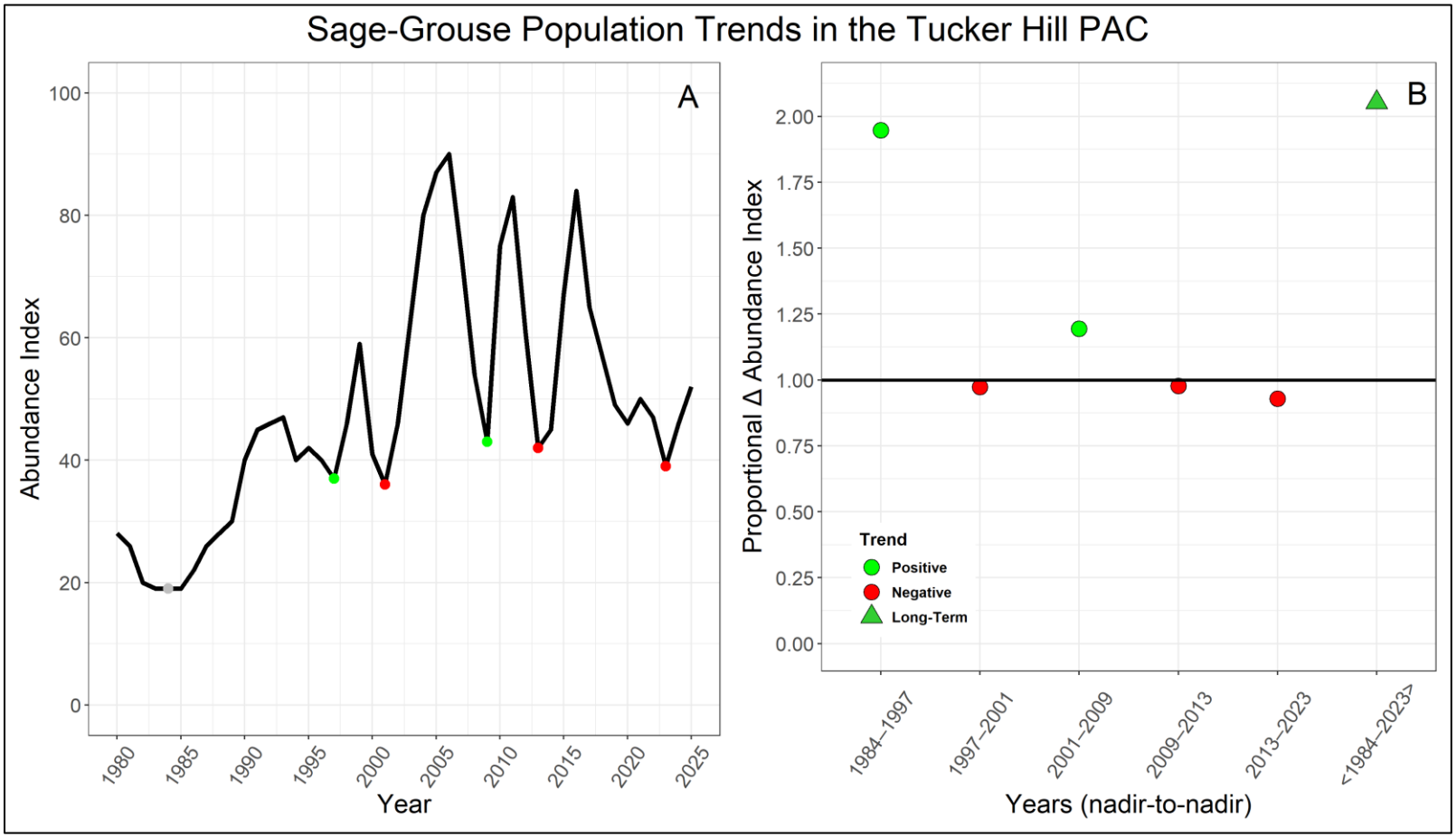


Figure A1. 22. Sage-grouse population trends in the Tucker Hill PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Warner PAC

Nadirs of the population cycle in the Warner PAC occurred during the years 1984, 1996, 2009, 2014, and 2019 (Figure A1.23A). The Warner PAC experienced declining population trends during all time periods (Figure A1.23B). The short-term population trend (1 oscillation) was -13.6% during 2014–2019, the mid-term population trend (3 oscillations) was -37.8% during 1996–2019, and the long-term population trend (4 oscillations) was -47.4% during 1984–2019 (Table A1.1).

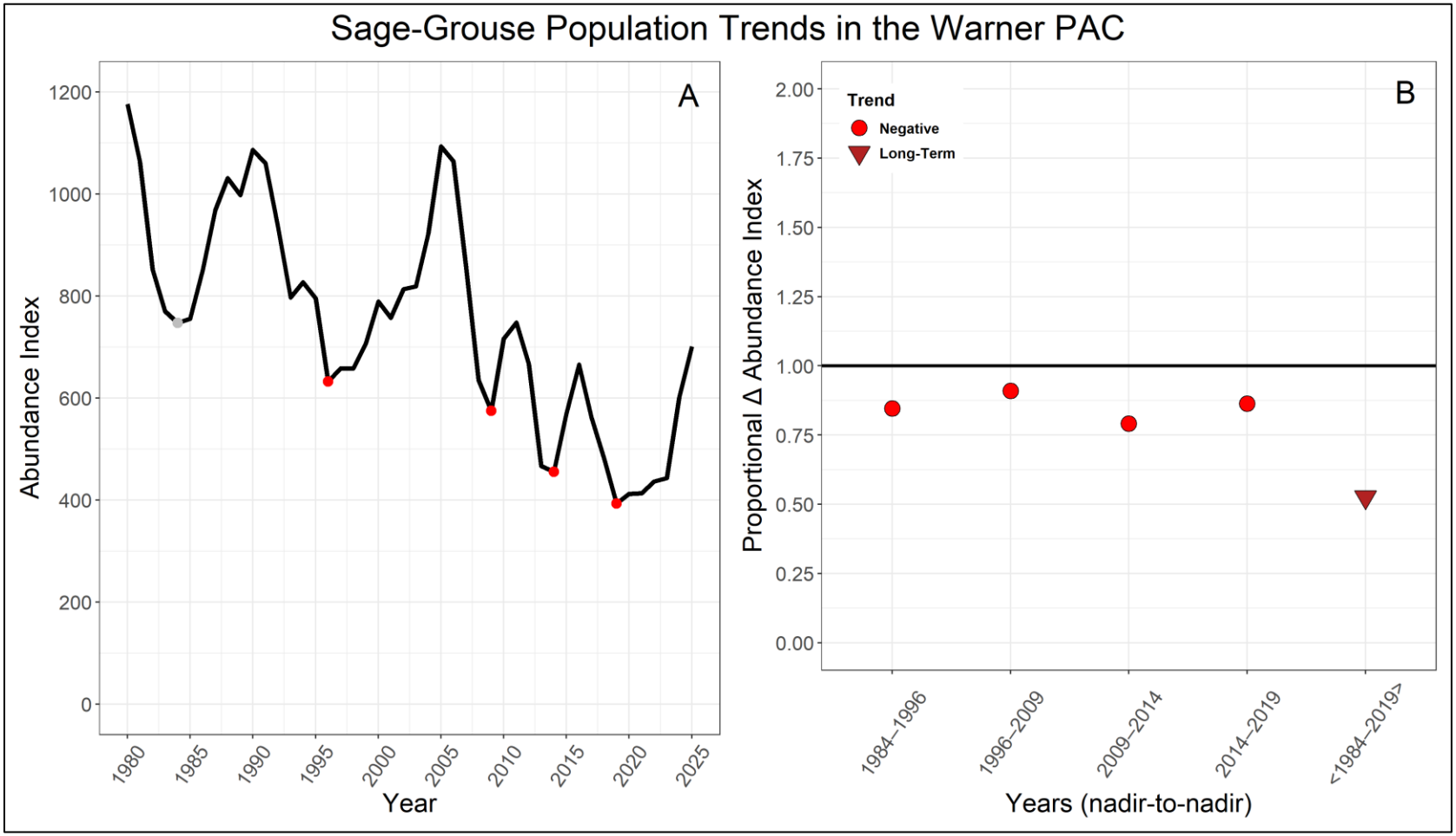


Figure A1. 23. Sage-grouse population trends in the Warner PAC. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Areas outside of PACs

Nadirs of the population cycle in areas outside of PACs occurred during the years 1985, 1996, 2002, 2009, and 2019 (Figure A1.24A). Areas outside of Oregon's PACs experienced declining population trends during all time periods (Figure A1.24B). The short-term population trend (1 oscillation) was -60.4% during 2009–2019, the mid-term population trend (2 oscillations) was -75.0% during 2002–2019, and the long-term population trend (4 oscillations) was -84.0% during 1985–2019 (Table A1.1). Notably, those areas outside of PACs have realized greater declines in population trend in both the short-term and long-term than areas within PACs.

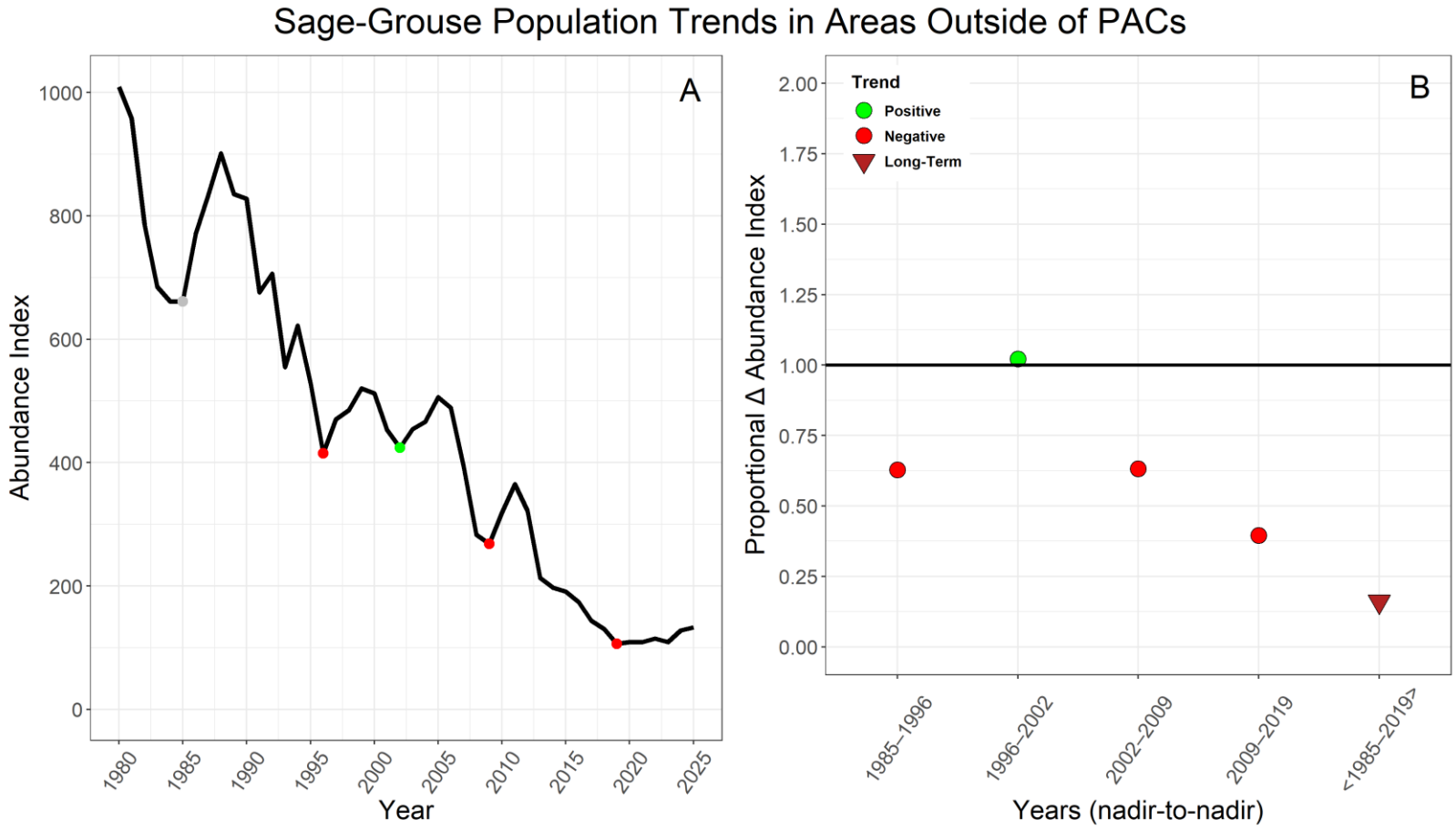


Figure A1. 24. Sage-grouse population trends in areas outside of Oregon's PACs. Panel A shows the index of sage-grouse abundance through time, 1980–2025. Panel B shows the proportional change in the index of sage-grouse abundance from nadir-to-nadir. Value 1.0 indicates a stable population trend during the time period, values < 1.0 indicates a negative population trend during the time period, and values >1.0 indicates a positive population trend during the time period.

Appendix II – 2026 ODFW Adopt-A-Lek Program Report



2026 Volunteer Field Report

Southeast Oregon Greater Sage-Grouse Adopt-A-Lek Program

Oregon Department of Fish and Wildlife
Prepared by Damian Fagan

Summary

This year marked the 21st year of ODFW's Adopt-A-Lek (AAL) volunteer program. The program provides an opportunity for citizen scientists from Oregon, Washington, and Idaho to survey greater sage-grouse (*Centrocercus urophasianus*) leks in remote portions of Malheur County. Data collected by the volunteers contributes to ODFW's annual population estimate for the species, which is essential to monitoring sage-grouse populations in Oregon.

This year, 65 AAL volunteers signed up to participate in the counts. Unfortunately, several had to cancel their assignments due to weather, schedules, or road conditions. It was a challenging year to access areas due to the intermittent storms, muddy roads, and snow, especially during the second and third count periods.

This year we had new volunteers from Ashland, Sisters, Bend, Portland, and Eugene. Thanks for joining the program!

The 2026 lek counting effort in Oregon continued to focus on key habitats within Priority Areas for Conservation (PACs). These PACs contain high-priority trend leks, and though the goal is to count each trend lek three times between March 15 and April 30, with 7–10 days between each

count morning, some were only counted once or twice this season. Again, weather and road access had an impact on survey effort, and the value of each survey morning cannot be understated.

A total of 129 leks were assigned to the AAL program in 2026 and 121 leks were counted at least once. Eight leks were not counted due to weather, difficult access, or road conditions.

In 2026, 271 dawn counts were conducted on 121 leks which resulted in a total of 2,645 sage-grouse counted. Sixty-nine leks were active (having 1 or more displaying males) and roughly 51% of the leks had some level of activity (one lek had activity but the birds were present were hens). Of the 69 leks that had activity, 51% of the leks had 1–10 male sage-grouse present, 22% had 11–20 males present, and 28% had 21 or more males present. The highest count of males on a lek was 63 birds. In the McDermitt area, of the 41 leks that were surveyed, 24 were active.

Additional sage-grouse were observed but absent during the dawn lek counts, having been observed either during mid-day lek checks or during travel to or away from the lek areas. Several suspected leks were checked and three potential new leks were located.

Volunteers contributed over 1,202 hours at an estimated value of over $42,685 (not all volunteer hour forms were returned) and this does not include amounts that were donated back to the program from travel reimbursements.

Several interesting notes from this season:

- Several leks which have not had displaying males for several years had activity this year.
- Several new leks were discovered with activity.
- The total highest male counts for all the leks in 2026 was 1069; in 2025 it was 1049 and in 2024 it was 809.
- Of all the leks that were active, 28% had over 21 males present on a given count. In 2025, that number was 29%.

Even though weather and road conditions were at times extremely challenging, AAL volunteers persevered and documented new observation points, lek activity, and lek access. Many volunteers made special efforts to write detailed comments and observations, share photos, and make suggestions to improve the AAL program, which is always appreciated. April Wilkinson deserves a special shout-out for fielding calls and emails on the weather and road conditions in the McDermitt area and thank you to Western Rivers Conservancy for allowing AAL Volunteers use of the Disaster Peak Ranch's bunkhouse.

The AAL sage-grouse survey data is a significant addition to Oregon's statewide sage-grouse population database, which is used by state biologists and federal land managers to manage this sagebrush-obligate species. Many thanks to the Oregon Wildlife Foundation and the Bureau of Land Management for providing funding and assistance and a huge THANK YOU to all the AAL volunteers that contributed to this program and who share a deep commitment to the conservation of this charismatic species.

2026 Volunteer Statistics

Note: this is not a year-to-year comparison of the exact same leks. Each year varies in terms of the number of leks assigned to the AAL program and how many leks were surveyed by the program during the season.

- 66 volunteers signed up to survey leks in 2026, 52 made it out to the field to conduct counts.
- 121 individual leks were counted (compared to 121 in 2025, 100 in 2024, 75 in 2023, 106 in 2022, 100 in 2021, 80 in 2020, 91 in 2019, 71 in 2018, 76 in 2017, 63 in 2016, 46 in 2015, 63 in 2014).
- 52 individual leks were counted at least 3 times (compared to 55 in 2025, 36 in 2024, 13 in 2023, 54 in 2022, 45 in 2022, 35 in 2020, 45 in 2019, 18 in 2018, 17 in 2017, 16 in 2016, 12 in 2015, 0 in 2014). One lek was counted 5 times.
- 271 count mornings were conducted (compared to 295 in 2025, 207 in 2024, 137 in 2023, 267 in 2022, 243 in 2021, 185 in 2020, 236 in 2019, 171 in 2018, 171 in 2017, 116 in 2016, 89 in 2015, 67 in 2014).
- 57% of the leks counted were active with at least one displaying male during the count morning (compared to 51% in 2025, 52% in 2024, 53% in 2023, 49% in 2022, 45% in 2021, 44% in 2020, 53% in 2019, 51% in 2018, 53% in 2017, 52% in 2016, 72% in 2015, 56% in 2014). One lek that was not considered active had several hens but no displaying males present.
- 52 leks were not active (no birds present) on any count morning (compared to 59 in 2025, 48 in 2024, 35 in 2023, 56 in 2022, 55 in 2021, 55 in 2020, 44 in 2019 and 35 in 2018)
- 69 leks were active (at least 1 male displaying) on a count morning (compared to 62 in 2025, 51 in 2024, 40 in 2023, 50 in 2022, 45 in 2022, 35 in 2020, 47 in 2019, 36 in 2018, 40 in 2017, 33 in 2016, 33 in 2015, 35 in 2014). One lek had activity but the birds were listed as "unclassified."
- 2,665 birds were counted on all the dawn counts (compared to 2,075 in 2025, 1,248 in 2024, 578 in 2023, 942 in 2022, 937 in 2021, 419 in 2020, 962 in 2019, 975 in 2017, 1,052 in 2016, 871 in 2015, 453 in 2014). Of this number, the total of high counts for males at a given lek (not counting repeat surveys) was 1,049.
- 0 leks were checked but not counted (compared to 0 in 2025, 0 in 2024, 0 in 2023, 0 in 2022, 11 in 2021, 0 in 2020, 9 in 2019, 5 in 2018, 2 in 2017, 10 in 2016, 14 in 2015, 34 in 2014)
- 51% of the active leks counted had 1–10 males (compared to 42% in 2025, 24% in 2024, 55% in 2023, 66% in 2022, 73% in 2021, 70% in 2020, 64% in 2019, 58% in 2018, 55% in 2017, 42% in 2016, 48% in 2015, and 44% in 2014)
- 22% of the active leks counted had 11–20 males (compared to 29% in 2025, 28% in 2024, 38% in 2023, 20% in 2022, 13% in 2021, 12% in 2020, 19% in 2019, 33% in 2018, 18% in 2017, 21% in 2016, 18% in 2015, and 38% in 2014)
- 28% of the active leks counted had 21 or more males (compared to 29% in 2025, 24% in 2024, 8% in 2023, 14% in 2022, 13% in 2021, 15% in 2020, 15% in 2019, 14% in 2018, 28% in 2017, 36% in 2016, 33% in 2015, and 15% in 2014)
- The largest lek count had 63 males (compared to 64 in 2025, 49 in 2024, 34 in 2023, 31 in 2022, 43 in 2021, 27 in 2020, 49 in 2019, 40 in 2018, 54 in 2017, 60 in 2016, 41 in 2015, and 37 in 2014).

Funding and support for the 2026 Volunteer Program was provided by the Oregon Department of Fish and Wildlife, Oregon Wildlife Foundation, and Bureau of Land Management. In-kind support was provided by Western Rivers Conservancy.

Gallery of Images















Photo Credits

Cover: Greater Sage-Grouse Trail Cam (Melinda Martin), Gallery of Images: Disaster Peak Sunrise (Jeff Bartunek), Lightsaber Sunrise (Howard Sheppa), Ceacal dropping (Damian Fagan), Upper Schnable Creek (Pete Zimowsky), Burrowing Owls (Damian Fagan), Feral Horses at Palomino (Melinda Martin), Digiscope sage-grouse (Brian de Wolf).

Appendix III – 2026 Aerial Survey Summary

Oregon Department of Fish and Wildlife (ODFW) conducts annual aerial lek searches, with the goals of 1) locating previously undocumented leks, 2) documenting shifts in sage-grouse breeding distribution, and 3) monitoring activity of leks which are inaccessible from the ground. ODFW contracted aerial services for lek searches by helicopter during spring 2026. Funding for 2026 aerial lek surveys was provided by the BLM through the current ODFW/BLM Terrestrial Good Neighbor Authority Agreement.

Aerial Lek Searches Overview

Aerial lek searches are conducted by helicopter from ½ hour before to 2 hours after sunrise, following fixed transects separated by ¼ – ½ mile. During searches, the helicopter maintains an altitude of 50–150 feet above ground level and a speed of approximately 60 mph. Helicopter searches and surveys are primarily directed towards the assessment of lek occupancy, as lekking sage-grouse are sensitive to aerial predators, and thus often limit their display behavior in presence of a helicopter. For this reason, following the discovery of previously unknown leks, ground observation of a site is required to confirm lek occupancy and attendance. Counts conducted from a helicopter are generally not used to estimate population trend in an analysis area. Rather, these counts typically function as presence-absence assessments of lek activity. The exception to this rule is when male counts recorded from a helicopter survey are greater than male counts recorded by a ground observer. In these cases, the aerial counts are used to assess both population abundance and trends.

2026 Aerial Survey

During early April 2026, ODFW contracted JL Aviation, Inc. to conduct 60 hours of helicopter lek searches in the Paulina PAC, northern Brothers PAC, and the adjacent low-density sage-grouse habitat in Crook, Deschutes, and Harney Counties. Approximately 2,400 miles of transects were flown over the course of 9 days, utilizing 2 helicopters (Figure A3.1). The aerial survey documented 13 locations where sage-grouse have not previously been known to display. Of these potential new lek locations, 4 leks were confirmed active by a ground observer in 2026 following the aerial survey, 1 lek in the Paulina PAC and 3 leks in the low-density habitat southeast of the Paulina PAC. These 4 new leks will be confirmed on the ground again in spring 2027 before they are added to the statewide database. The remaining potential new lek locations in the Brothers PAC, Paulina PAC, and surrounding low-density habitat will need to be verified on the ground during the next several breeding seasons before they can be confirmed as new lek locations and added to the database.

2025 Aerial Survey

During early April 2025, ODFW contracted JL Aviation, Inc. to conduct 43 hours of helicopter lek searches in the Steens PAC and the low-density sage-grouse habitat north of the Sheepshead PAC in Harney County and Malheur County. Approximately 1,600 miles of transects were flown over the course of 7 days, utilizing 2 helicopters. The aerial survey documented 22 locations where sage-grouse have not previously been known to display. Of these 22 potential new lek

locations, 6 leks were confirmed active by a ground observer in 2025 following the aerial survey, 5 in the Steens PAC and 1 lek in the low-density habitat north of the Sheepshead PAC. During the 2026 lek survey season 3 additional new leks were confirmed active in the Steens PAC and added to the database. Notably, many of these new leks in the Steens PAC (discovered during 2024 and 2025 surveys) are among the highest elevation leks in Oregon, with birds displaying at several locations above 6,500 feet, and a few locations above 7,000 feet. There are two potential new lek locations in the Sheepshead PAC which still need to be verified on the ground during the upcoming survey seasons, and there are several additional potential new lek locations in the Steens PAC which still need to be confirmed on the ground before they can be added to the statewide lek database. However, the majority (9 of 10) of these remaining potential new leks in the Steens PAC are located on private lands, so access limitations may preclude ground confirmation.

2024 Aerial Survey

During early April 2024, ODFW contracted JL Aviation, Inc. to conduct 64 hours of helicopter lek searches in the Pueblos and Steens PACs and surrounding low-density sage-grouse habitat in Harney County. Approximately 2,500 miles of transects were flown over the course of 8 days, utilizing 2–3 helicopters. The aerial survey documented 16 locations where sage-grouse have not previously been known to display. Of the 16 potential new lek locations, 9 leks were confirmed active by a ground observer in 2024 following the aerial survey, 4 in the Steens PAC and 5 in the Pueblos PAC. During the 2025 breeding season, 4 previously unknown leks were checked and confirmed, 3 new leks in the Steens PAC and 1 new lek in the Pueblos PAC. Two potential new leks discovered during the 2024 aerial survey remain to be checked on the ground during the spring 2027 sage-grouse breeding season, one in the Steens PAC and one in the Pueblos PAC.

2023 Aerial Survey

During late March through mid-April 2023, ODFW and Hart Mountain National Antelope Refuge contracted JL Aviation, Inc. to conduct over 100 hours of helicopter lek searches in the Beatys PAC (on-refuge and off-refuge) and surrounding low-density sage-grouse habitat in Lake County and a small portion of Harney County. This effort resulted in the discovery of 14 previously unknown leks (10 on Hart Mountain National Antelope Refuge, and 4 off-refuge) which were located by air and confirmed on the ground during 2023–2025. There are no potential new leks discovered during the 2023 aerial survey in the Beatys PAC which remain to be checked on the ground.

2022 Aerial Survey

During mid-March through early April 2022, ODFW conducted helicopter lek searches in the Louse Canyon PAC and a small portion of the Trout Creeks PAC. This effort resulted in the discovery of 14 previously unknown leks that were located by air and confirmed on the ground during subsequent breeding seasons, 2022–2026; 10 new leks in the Louse Canyon PAC and 4 new leks in the Trout Creeks PAC. Two previously unknown leks discovered during the 2022 aerial survey were confirmed on the ground during the 2026 lek survey season and added to the statewide lek database, both in the Louse Canyon PAC. The combined maximum count at these two new leks confirmed in 2026 was 64 males. As of spring 2026, all the potential new leks

discovered in the Trout Creeks PAC and Louse Canyon PAC during the 2022 aerial survey have been checked on the ground and confirmed as active and added to the lek database or confirmed inactive and removed from the list.

2021 Aerial Survey

During late-March 2021, ODFW conducted helicopter lek searches in the Soldier Creek PAC. This effort resulted in the discovery of ten previously unknown leks that were located by air and confirmed on the ground during subsequent spring breeding seasons, 2021–2024. As of spring 2026, all the potential new leks discovered in the Soldier Creek PAC during the 2021 aerial survey have been checked on the ground and confirmed as active and added to the lek database or confirmed inactive and removed from the list.

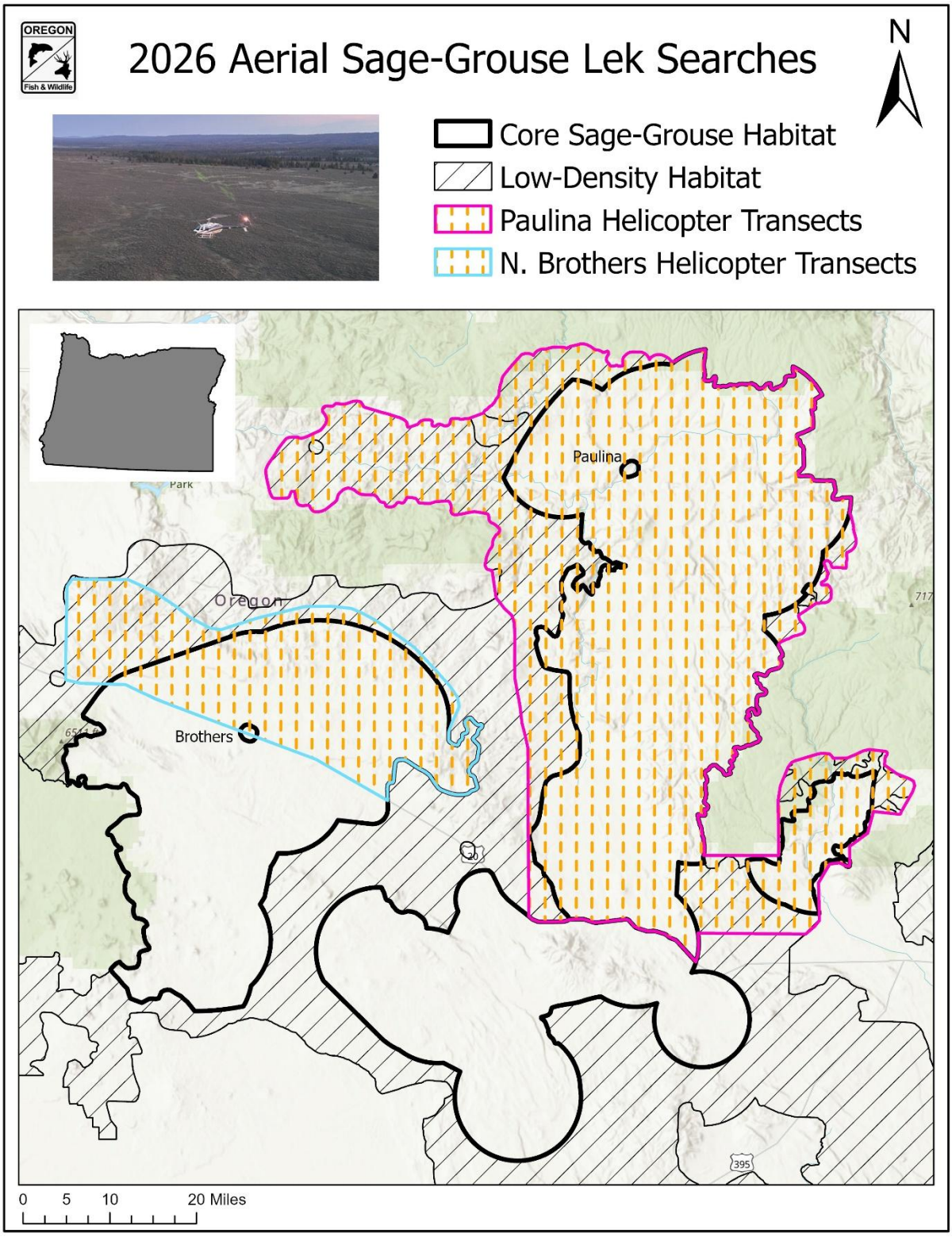


Figure A3. 1. Greater sage-grouse aerial lek search transects in southeastern Oregon, including the entire Paulina PAC and adjacent low-density habitat, the northern portion of the Brothers PAC, 2026.

Appendix IV – 2026 Sage-Grouse Wing-Bee Report (2025 Hunting Season Data)

Oregon Sage-Grouse Wing Analyses, 2026

Annual Report

Skyler Vold, Sage-Grouse Conservation Coordinator

Executive Summary

Oregon Department of Fish and Wildlife authorized 695 greater sage-grouse (Centrocercus urophasianus; hereafter: sage-grouse) permits across 9 Wildlife Management Units during September 2025. Following the 2025 hunting season, 261 sage-grouse wings were received from hunters. This represents the second largest wing collection since 2017, when 800 permits were authorized. Production in 2025, as measured by percent juveniles in the harvest and the number of chicks per hen (CPH), was below average. Percent juveniles in the harvest was 39%, below the long-term average of 48% (1993–2024). The number of chicks per hen in 2025 was 0.95 CPH, below the long-term average of 1.54 CPH (1993–2024). Apparent nest success in 2025, based on retention of the primary 9 (P9) feather of harvested females, was below average [P9 nest success: 2025 = 32%; 1993–2024 average = 42%]. Production data collected from hunter-harvested wings in 2025 suggests that sage-grouse populations may decline in 2025, as our indices of annual production, chicks per hen and proportion juveniles in the harvest, were below average, likely resulting in fewer birds recruiting into the breeding population.

Overview

In 2025, the sage-grouse hunting season in Oregon was by permit for nine days (6–14 Sept), with a daily and seasonal bag limit of two birds. The hunting season length during 2005–2025 was nine days, compared to five days during 1995–2004, and two days in 1993 and 1994. There have been no changes to the daily or seasonal bag limit since 1993 (Braun et al. 2015; Table A4.1).

Plumage characteristics of wings are used to assess age and sex of numerous game bird species. By assessing plumage characteristics from hunter-harvested wings, demographic parameters (e.g. age structure, sex ratio, and nest success) can be estimated for sage-grouse populations. Sage-grouse wings have been analyzed to gather information regarding population structure and demography in Oregon since 1982. However, methods used to determine age and sex from wing characteristics were refined in 1993. Due to this change in methodology, all long-term average rates are calculated only for the 1993–2025 period. As in previous years, all hunters who were successful in the controlled sage-grouse hunt drawing were provided envelopes for the

return of sage-grouse wings to Oregon Department of Fish and Wildlife (ODFW). Sage-grouse wings collected during the 2025 hunting season were processed by ODFW and U.S. Fish and Wildlife Service biologists at the annual Wing Bee held on 22 Janurary 2026.

Table A4. 1. Sage-grouse hunting season dates, lengths, daily and season bag limits, and permits authorized, Oregon, 1993–2025.

Year	Season Date	No. Days	Daily Bag	Season Limit	Permits Authorized
1993	18–19 Sept	2	2	2	865
1994	17–18 Sept	2	2	2	*No Data*
1995	9–13 Sept	5	2	2	1040
1996	7–11 Sept	5	2	2	1140
1997	6–10 Sept	5	2	2	1265
1998	12–16 Sept	5	2	2	1265
1999	11–15 Sept	5	2	2	1265
2000	9–13 Sept	5	2	2	1265
2001	8–12 Sept	5	2	2	1265
2002	7–11 Sept	5	2	2	1250
2003	6–10 Sept	5	2	2	1275
2004	11–15 Sept	5	2	2	1275
2005	10–18 Sept	9	2	2	1300
2006	9–17 Sept	9	2	2	1300
2007	8–16 Sept	9	2	2	1175
2008	6–14 Sept	9	2	2	1175
2009	12–20 Sept	9	2	2	1150
2010	11–19 Sept	9	2	2	1150
2011	10–18 Sept	9	2	2	1130
2012	8–16 Sept	9	2	2	885
2013	7–15 Sept	9	2	2	870
2014	6–14 Sept	9	2	2	845
2015	12–20 Sept	9	2	2	845
2016	10–18 Sept	9	2	2	845
2017	9–17 Sept	9	2	2	800
2018	8–16 Sept	9	2	2	740
2019	7–15 Sept	9	2	2	645
2020	12–20 Sept	9	2	2	630
2021	11–19 Sept	9	2	2	635
2022	10–18 Sept	9	2	2	640
2023	9–17 Sept	9	2	2	640
2024	7–15 Sept	9	2	2	670
2025	6–14 Sept	9	2	2	695

Following the 2025 hunting season, 261 hunter-harvested wings were received from the nine Wildlife Management Units or sub-units (WMUs or sub-WMUs) where permits were allocated (Table A4.2, Figure A4.1). This represents an decrease in wing collection from the previous year (2024 = 310 wings), yet the second highest wing collection since 2017. Wing collection remains below the 31-year (1993–2024) average of 446 wings (Table A4.3), due to reductions in the number of controlled hunt permits authorized over the past decade. Over 75% of wings (n = 203) were received from four WMUs [Beatys Butte, Malheur River, Warner, and Whitehorse] (Table A4.4). No permits were offered in the Silvies WMU in 2025 due to potential impacts from the Falls Wildfire of July–August 2024. Due to concerns about decreasing population trends and the impacts of large wildfires, no permits have been offered in the Sumpter and Lookout Mountain WMUs (WMUs 51 and 64), South Wagontire Sub-WMU (Sub-WMU 73B), and Juniper WMU (WMU 71) since 2014, 2016, and 2017, respectively (Figure A4.1). In 2019, permits were once again offered in that part of the Whitehorse WMU west of Highway 95 and south of the Whitehorse Ranch Road (Trout Creek Mountains, Sub-WMU 68A; Figure A4.1). No permits were offered in this area during 2012–2018 due to ongoing research investigating the impacts of the Holloway Fire on sage-grouse in the Trout Creek Mountains. In 2019, initial research questions had been addressed and these populations had sufficiently rebounded to allow a conservative offering of 25 sage-grouse permits in the subunit. This tag draw was conducted seperately from the remainder of the Whitehorse WMU (E. Whitehorse, Sub-WMU 68B; Figure A4.1), to maintain a conservative harvest level in the Trout Creek Mountains sub-unit. In 2020 and 2021, 30 permits were offered in the Trout Creek Mountains sub-unit, followed 35 permits in 2022 and 2023, and 40 permits in 2024. In 2025, this population again increased, and 45 permits were offered in the Trout Creek Mountains sub-unit (Table A4.2).

Figure A4. 1. Oregon wildlife management units with permitted greater sage-grouse hunting and the distribution of greater sage-grouse in Oregon, 2025.

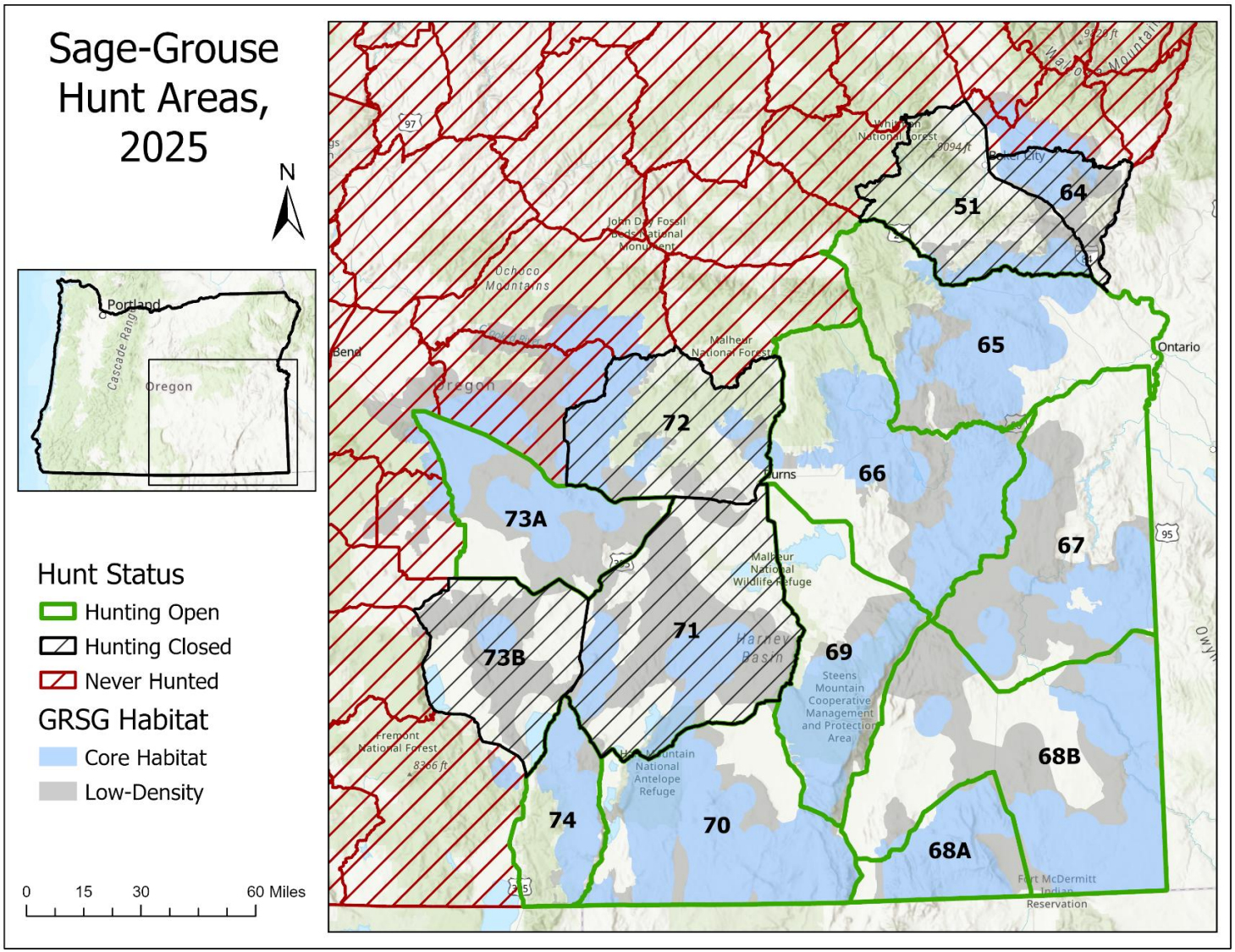


Table A4. 2. Oregon wildlife management units or sub-units with permitted sage-grouse harvest, 2025.

WMU #	WMU Name	2025 Permits
65	Beulah	125
66	Malheur River	110
67	Owyhee	45
68A	Trout Creek Mtns.	45
68B	E. Whitehorse	110
69	Steens Mtn.	60
70	Beatys Butte	90
72	Silvies	0
73[a]	Wagontire	30
74	Warner	80

[a]Unit partially closed to hunting in 2025.

Age and Sex Composition

Sage-grouse wings were classified by age (juvenile = hatch year; yearling = second year; adult = after hatch year), based on characteristics of the outer primaries (P7–P10), first secondary, tertials, and wing coverts (Braun and Schroeder 2015). In areas where most of the breeding occurs in March and early April, including Oregon, few yearling males will be identifiable in the harvest due to molt progression (Braun and Schroeder 2015). Additionally, if non-nesting or early nesting yearling females complete their wing molt before harvest, there is no reliable way to differentiate these birds from after second year adult females (Braun and Schroeder 2015). Therefore, in Oregon, after hatch year birds are classified as adults unless they can be definitively identified as yearlings by the presence of juvenile primary 9 (P9) and/or primary 10 (P10) feathers (Braun et al. 2015).

Sex classification was assigned based on the length of the P9 and/or P10 feather, depending on the condition of the wing (Braun and Schroeder 2015). Relatively few yearlings are identified in the harvest in Oregon (32-year average = 6% of harvest); 10% of the harvested birds were classified as yearlings in 2025. Production in 2025, as measured by percent juveniles in the harvest, was 39%, representing a decrease from 2024 (55%), and was below the long-term (31-year) average of 47%. Within individual WMUs, the percent of juveniles in the harvest was variable, likely due to small sample sizes (Figure A4.2). The number of wings received for individual WMUs ranged from 7 to 68 (Table A4.4). The greatest proportion of juveniles in the harvest was in the North Wagontire sub-WMU (75%; 6 of 8 wings), followed by the Warner

WMU (49%; 20 of 41 wings), and the East Whitehorse sub-WMU (43%; 29 of 68 wings; Table A4.4; Figure A4.2). The sex ratio of juveniles in the 2025 harvest was skewed slightly female (41 males to 59 females), compared to the long-term average juvenile sex ratio (45:55; Table A4.5).

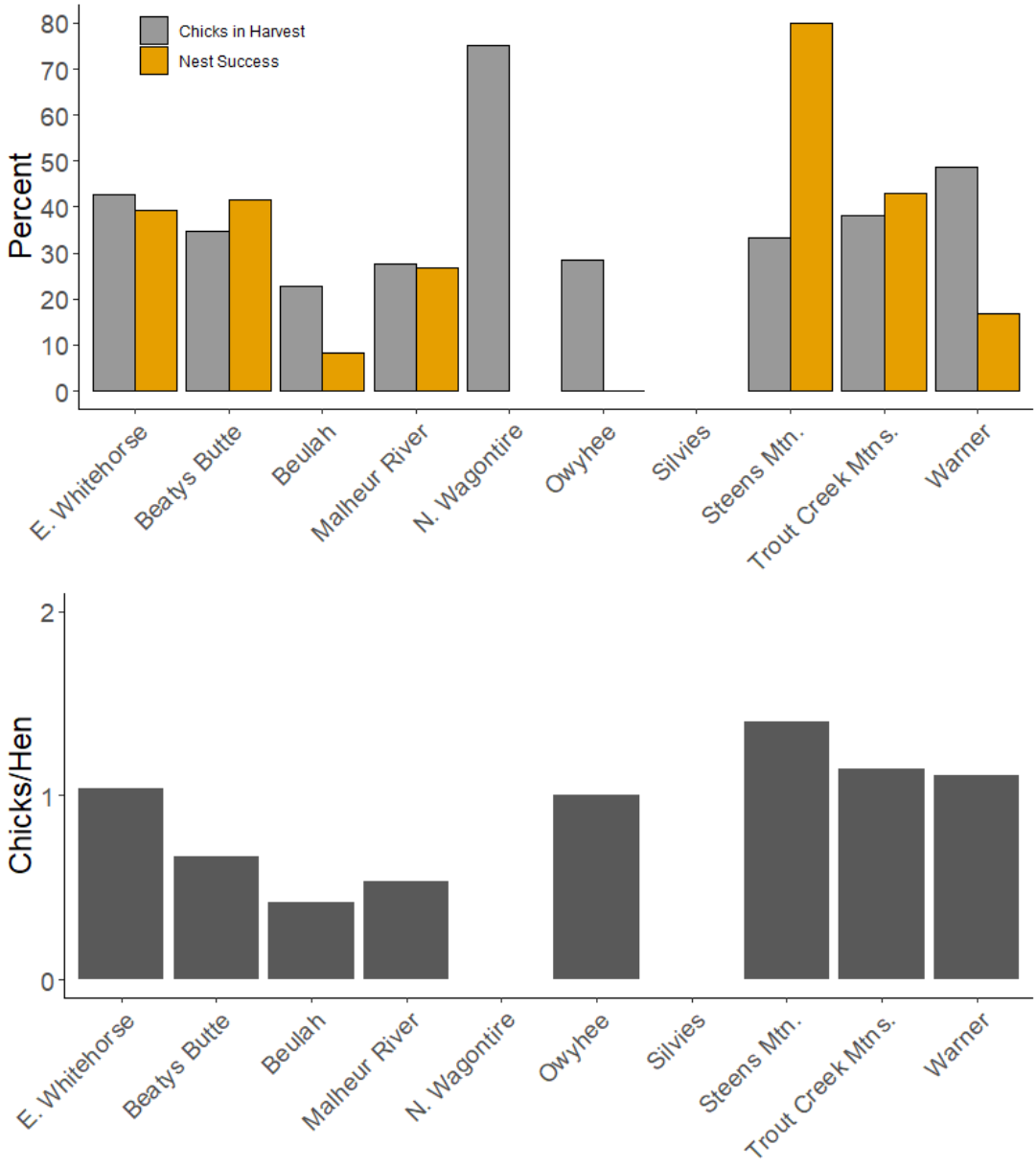


Figure A4. 2. Nest success, percent juveniles in the harvest, and chicks per hen by WMU where sage-grouse harvest occurred, Oregon, 2025. Missing data in the North Wagontire and Owyhee WMUs reflects apparent nest success of 0 in these WMUs in 2025. However, this is an issue of sample size, as both WMUs recorded chicks in the harvest. No hunting permits were offered in the Silvies WMU during the 2025 hunting season.

Table A4. 3. Sex composition by age class, and age composition of harvested sage-grouse, all wildlife management units open to harvest, Oregon, 1993–2025.

		Juvenile			Yearling			Adult		
Year	N	M (%)	F (%)	% Harvest	M (%)	F (%)	% Harvest	M (%)	F (%)	% Harvest
1993	439	51	49	47	26	74	4	40	60	49
1994	764	47	53	43	12	88	7	32	68	50
1995	456	42	58	36	5	95	5	32	68	60
1996	493	42	58	51	4	96	5	31	69	44
1997	586	47	53	54	16	84	4	39	61	39
1998	466	48	52	49	6	94	4	39	61	47
1999	671	46	54	56	14	86	5	41	59	39
2000	592	46	54	44	22	78	8	47	53	48
2001	670	50	50	54	10	90	7	44	56	38
2002	648	51	49	58	9	91	7	46	54	36
2003	655	46	54	48	12	88	5	47	53	47
2004	778	45	55	52	9	91	6	40	60	42
2005	829	46	54	45	5	95	5	46	54	50
2006	669	46	54	47	30	70	5	49	51	48
2007	485	44	56	28	10	90	6	38	62	66
2008	443	49	51	54	0	100	4	30	70	42
2009	493	47	53	57	0	100	5	49	51	38
2010	463	43	57	48	4	96	5	36	64	47
2011	422	43	57	42	10	90	5	48	52	53
2012	321	40	60	29	30	70	14	49	51	57
2013	254	50	50	58	11	89	7	36	64	35
2014	264	38	62	31	6	94	6	42	58	63
2015	290	43	57	58	14	86	2	40	60	40
2016	331	54	46	46	32	68	8	45	55	47
2017	270	42	58	39	5	95	7	37	63	53
2018	255	36	64	42	15	85	5	49	51	53
2019	145	44	56	48	0	100	5	38	62	47
2020	175	44	56	43	7	93	8	37	63	49
2021	150	44	56	43	7	93	8	35	65	53
2022	228	37	63	51	27	73	7	48	52	42
2023	247	57	43	61	0	100	4	43	57	35
2024	310	38	62	55	48	52	7	47	53	38
32-yr Avg.	*446*	*45*	*55*	*47*	*14*	*86*	*6*	*41*	*59*	*47*
2025	261	41	59	39	19	81	10	37	63	51

Table A4. 4. Sex composition by age and age composition of harvested sage-grouse within Wildlife Management Units with potential sage-grouse harvest, Oregon, 2025. Total by percent in each age class represents the overall proportion of the given age class in the harvest.

		Juveniles						Yearlings						Adults					
	Sample	Male		Female		Totals		Male		Female		Totals		Male		Female		Totals	
WMU[a]	Size	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
51[b]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64[b]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65	22	2	40	3	60	5	*23*	0	0	0	0	0	*0*	5	29	12	71	17	*77*
66	29	3	38	5	63	8	*28*	0	0	3	100	3	*10*	6	33	12	67	18	*62*
67	7	2	100	0	0	2	*29*	0	0	1	100	1	*14*	3	75	1	25	4	*57*
68A	42	6	38	10	63	16	*38*	2	29	5	71	7	*17*	10	53	9	47	19	*45*
68B	68	14	48	15	52	29	*43*	1	17	5	83	6	*9*	10	30	23	70	33	*49*
69	21	3	43	4	57	7	*33*	2	100	0	0	2	*10*	7	58	5	42	12	*57*
70	23	3	38	5	63	8	*35*	0	0	5	100	5	*22*	3	30	7	70	10	*43*
71[b]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
72[b]	0	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-
73[c]	8	3	50	3	50	6	*75*	0	-	0	-	0	*0*	2	100	0	0	2	*25*
74	41	5	25	15	75	20	*49*	0	0	2	100	2	*5*	3	16	16	84	19	*46*
All	*261*	*41*	41	*60*	*59*	*101*	*39*	*5*	19	*21*	*81*	*26*	*10*	*49*	37	*85*	*63*	*134*	*51*

[a]Wildlife Management Unit: 51 - Sumpter, 64 - Lookout Mtn., 65 - Beulah, 66 - Malheur River, 67 - Owyhee, 68A – Trout Creek Mtns, 68B – E. Whitehorse, 69 - Steens Mtn., 70 - Beatys Butte, 71 - Juniper, 72 - Silvies, 73 - Wagontire, 74 - Warner.
[b]WMU no hunting permits offered in 2025.
[c]WMU partially closed to hunting during 2025.

Table A4. 5. Sage-grouse production data as determined from hunter-harvested wings, Oregon, 1982–1984, 1989–1992, 1993–2024, and 2025. Data is divided into these periods due to the sage-grouse harvest closure during 1985–1988, and implementation of revised wing analysis methodology in 1993.

Year	n	% Juvenile	Chicks/Female	Chicks M:F
1982	73	53	2.4	26:74
1983	291	38	0.9	53:47
1984	144	40	1	42:58
1985–1988		Hunting Season Closed		
1989	326	41	1.1	46:54
1990	437	34	1	39:61
1991	295	31	0.8	37:63
1992	407	31	0.7	48:52
1982–1992 Mean	*282*	*38*	*1*	*48:58*
1993	439	47	1.4	51:49
1994	764	43	1.1	47:53
1995	456	36	0.8	42:58
1996	493	51	1.5	42:58
1997	586	54	1.8	47:53
1998	466	49	1.5	48:52
1999	671	56	2	46:54
2000	592	44	1.4	46:54
2001	670	54	1.9	50:50
2002	648	58	2.3	51:49
2003	655	48	1.6	46:54
2004	778	52	1.7	45:55
2005	829	45	1.4	46:54
2006	669	47	1.7	46:54
2007	485	28	0.6	44:56
2008	443	54	1.6	49:51
2009	493	57	2.3	47:53
2010	463	48	1.4	43:57
2011	422	53	1.3	43:57
2012	321	29	0.8	40:60
2013	254	58	2	50:50
2014	262	31	0.7	38:62
2015	290	58	2.3	43:57
2016	331	46	1.5	54:46
2017	270	39	1	42:58
2018	255	42	1.4	36:64
2019	145	48	1.4	44:56
2020	175	43	1.1	44:56

Table A4.5. Cont'd.

2021	150	41	1.1	46:54
2022	228	51	1.9	37:63
2023	247	61	2.5	57:43
2024	310	55	2.3	38:62
1993–2024 Mean	*446*	*48*	*1.5*	*45:55*
2025	261	39	1.0	41:59

Nest Success and Production

Nest success was estimated based on wing molt patterns of adult and yearling females. Female sage-grouse replace primary feathers following completion of nesting activity (Braun and Schroeder 2015); thus, hens with successful nests will initiate their molt later than hens with unsuccessful nests. Wings from hens harvested while they were in the process of growing new primary feathers through P9 likely had a successful hatch (Braun and Schroeder 2015). Conversely, wings from hens which had unsuccessful nests are typically growing P10 or have completed their primary molt at the time of harvest because they began molting earlier (Braun and Schroeder 2015). In Oregon, P9 is used to estimate apparent nest success, except in years of extraordinary snow or drought. Use of P9 will generally give a minimum estimate of nest success, but in some years may underestimate actual nest success. Overall, apparent nest success in 2025 was 32%, lower than apparent nest success in 2024 (36%), and lower than the long-term average (42%; Table A4.6). The extent to which annual variability in apparent nest success is related to actual variability in nest success is unclear due to the impact of variable weather conditions and hatch dates, which may mask true changes in nest success. Apparent nest success in units where the number of adult or yearling hens was greater than 1 was highest in the Steens WMU (80%, 4 of 5 total females), followed by the Trout Creeks sub-unit of the Whitehorse WMU (43%, 6 of 14 total females), and the Beatys Butte WMU (42%, 5 of 12 females; Table A4.7; Figure A4.2). Apparent nest success was low in several WMUs, including the Beulah WMU (8%; 1 of 12 females), Owyhee WMU (0%; 0 of 2 females), and Warner WMU (17%; 3 of 18 females), lowering the overall apparent nest success estimate (Figure A4.2). However, these estimates may be driven by low sample sizes and may not be representative of the true nest success in these WMUs. The overall hatch appeared to be earlier in 2025, likely leading to more females initiating molt earlier than average. In this case, female retention of P10 may be a more

appropriate indication of 2025 nest success, where estimated nest success was 53% (Table A4.7). True nest success during 2025 was likely in the range of 32–53%.

Connelly et al. (2000) suggested that a chick per hen (CPH) ratio $\geq$ 2.25 indicates a healthy, stable or increasing population, but this ratio may be higher than required to maintain some populations and requires further study (Braun 2012). In Oregon, the long-term average (1993–2024) chick per hen ratio is 1.54 CPH. Production in 2025, as measured by chicks per hen, was below the long-term average at 0.95 CPH, (Figure A4.3). Within WMUs, nest success was neither correlated with the proportion of juveniles in the harvest (Pearson's Correlation Coefficient = -0.22, p = 0.60) nor with the number of chicks per hen (Pearson's Correlation Coefficient = 0.54, p = 0.16). Historically, apparent nest success and production in Oregon have not been well correlated, with 2021 and 2023 serving as outliers, suggesting that nest success information derived from plumage characteristics is often unreliable. The pattern of disagreement between estimated P9 nest success and production as measured by the ratio of chicks per hen is historically consistent, with no significant correlation between the two values at the statewide level since current data collection began in 1993. The lack of correlation between these two values may suggest that variability in nesting and hatch dates due to climatological factors limits the utility of a single morphometric measure of nest success over time. Current methods for determining apparent nest success may be more useful as a measure of relative date of nesting between years than as a comparison of nest success among years. Further research is needed to develop accurate methods of determining nest success from wing data.

Table A4. 6. Sage-grouse nesting success as indicated by retention of at least primary feather P9, all wildlife management units with sage-grouse harvest, Oregon, 1993–2025.

Year	Nest Success (Retention of P9 and Lower)
1993	40
1994	40
1995	43
1996	51
1997	*No Data*
1998	30
1999	46
2000	45
2001	49
2002	47

Table A4.6 Cont'd

Year	Nest Success (Retention of P9 and Lower)
2003	54
2004	35
2005	34
2006	49
2007	35
2008	48
2009	49
2010	37
2011	46
2012	63
2013	47
2014	52
2015	27
2016	30
2017	32
2018	46
2019	45
2020	33
2021	37
2022	39
2023	45
2024	36
32-Year Average	*42*
2025	32

Table A4. 7. Sage-grouse nest success as indicated by retention of at least primary feather P9, and production rates, all WMUs with sage-grouse harvest, Oregon, 2025.

WMU	Adults			Yearling			All Hens			Harvest Age Composition			Production	
	Successful Adult Females (n)	Total Adult Females (n)	Adult Nest Success (%)	Successful Yearling Females (n)	Total Yearling Females (n)	Yearling Nest Success (%)	Successful Females (n)	Total Females (n)	Nest Success (%)	Total Harvest (n)	Juveniles in Harvest (n)	Juveniles in Harvest (%)	Juveniles per Female	Juveniles per Successful Female
Beatys Butte	1	7	14	4	5	80	5	12	42	23	8	35	0.67	1.60
Beulah	1	12	8	0	0	NA	1	12	8	22	5	23	0.42	5.00
E. Whitehorse	7	23	30	4	5	80	11	28	39	68	29	43	1.04	2.64
Malheur River	3	12	25	1	3	33	4	15	27	29	8	28	0.53	2.00
Owyhee	0	1	0	0	1	0	0	2	0	7	2	29	1.00	NA
Silvies[a]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Steens Mtn.	4	5	80	0	0	NA	4	5	80	21	7	33	1.40	1.75
Trout Creek Mtns.	2	9	22	4	5	80	6	14	43	42	16	38	1.14	2.67
Wagontire[b]	0	0	NA	0	0	NA	0	0	NA	8	6	75	NA	NA
Warner	2	16	13	1	2	50	3	18	17	41	20	49	1.11	6.67
All Areas (P9 or lower)	20	85	24	14	21	67	34	106	32	261	101	48	0.95	2.97
All Areas (P10 or lower)	36	85	42	21	21	100	57	106	54	261	101	48	0.95	1.77

[a]WMU closed to hunting during 2025.
[b]WMU partially closed to hunting during 2025.

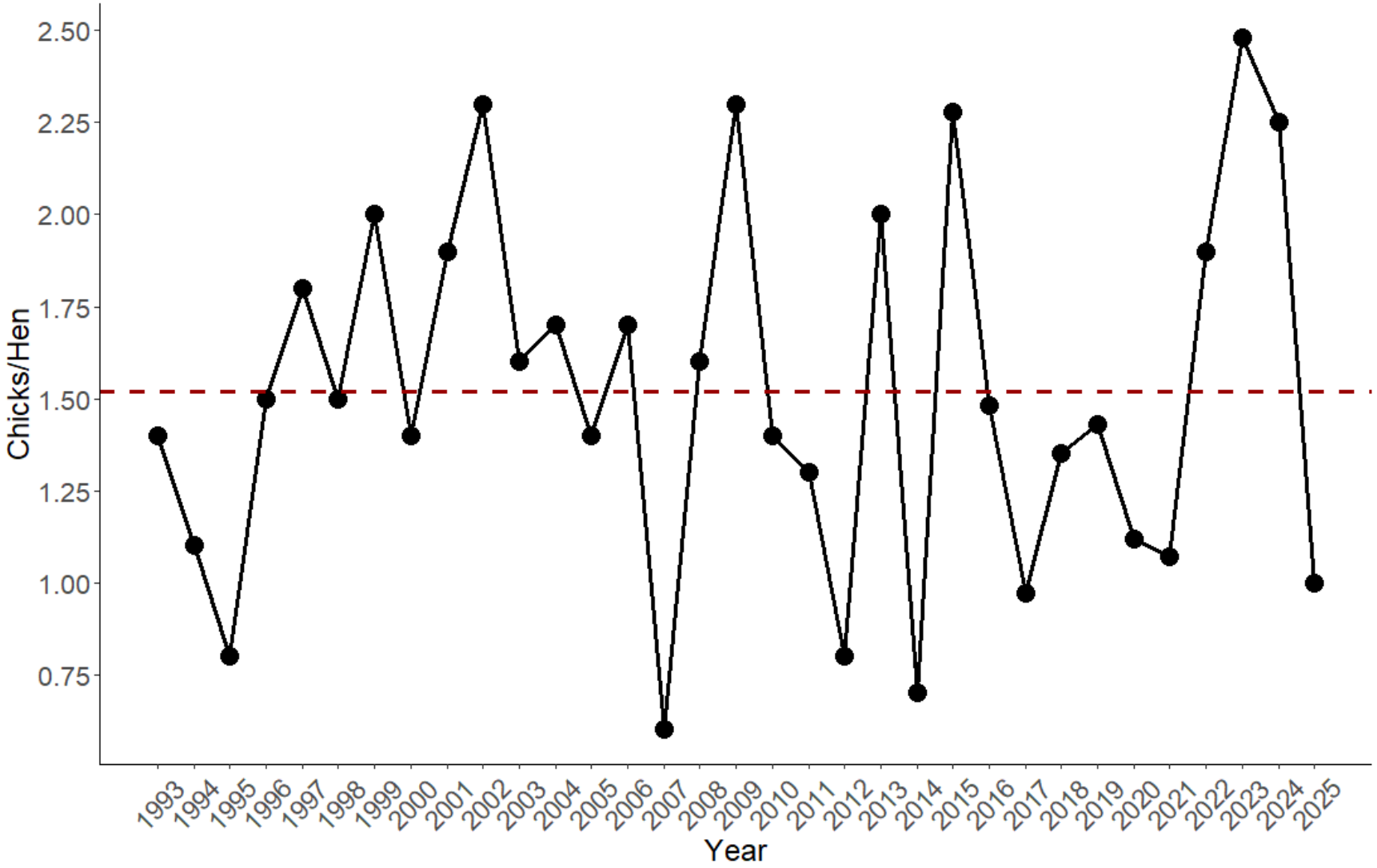


Figure A4. 3. Oregon sage-grouse production values (chicks per hen; CPH) and 33-year average (dashed line; 1993–2025) estimated from hunter harvested wing analyses, 1993–2025.

Hatching Chronology

Where possible, the length of the most recently replaced actively growing adult primary feather (usually P8 or P7) was recorded for juveniles. Juvenile ages were calculated using growth data modified from captive-reared sage-grouse (Pyrah 1963). However, there is some evidence suggesting growth rates between wild and captive birds differ. Thus, the estimated hatch dates (Tables A4.8, A4.9) may be up to seven days earlier than the actual hatch date (Pyrah 1963).

Estimated chick hatch in 2025 began on 22 April, and lasted through late June, with no harvested juveniles estimated to hatch in July. Typically, hatching chronology estimates in Oregon have suggested that peak male hatch occurs approximately 1 week prior to peak female hatch, likely due to flaws in the primary growth curves used to estimate hatch date. However, hatching chronology estimates in 2025 indicate the peak of male chick hatching occurred May 15–21, while the peak of female chick hatching occurred during May 8–14 (Figure A4.4). Approximately 38% of males and females were estimated to hatch prior to May 15, 77% of males and 74% of females were estimated to hatch prior to May 29, and 100% of males and 90% of females and were estimated to have hatched prior to June 12 (Figure A4.5; Table A4.9). There is no known biological mechanism to explain sex-specific hatch dates, further supporting the need for improved sage-grouse chick growth curve data.

Table A4. 8. Estimated hatch dates for juvenile sage-grouse (% of total) from hunter-harvested wings, Oregon, 1993–2025.

		May					June				July		
Year	N	<1	1–7	8–14	15–21	22–28	29–4	5–11	12–18	19–25	26–2	3–9	10–16
1993	205	-	1	10	21	18	13	16	13	8	1	1	1
1994	327	1	9	22	18	16	11	12	8	3	1	1	-
1995	163	1	8	13	21	9	8	12	13	6	7	2	-
1996	253	2	9	15	12	14	11	17	10	4	2	3	1
1997	313	8	8	17	15	12	17	15	5	3	1	1	-
1998	229	2	10	13	15	18	14	10	3	7	2	4	1
1999	373	3	5	16	17	16	11	13	8	8	2	1	-
2000	260	7	7	17	18	16	15	14	4	2	1	-	-
2001	359	2	7	13	16	16	17	12	10	5	3	-	-
2002	373	5	6	17	13	21	13	13	4	4	3	1	-
2003	314	4	9	10	15	13	15	13	11	7	4	1	-
2004	398	3	10	24	24	14	11	8	5	2	1	-	-
2005	68	4	9	22	15	9	11	11	9	6	3	2	-
2006	323	1	3	10	12	12	18	21	15	7	1	1	-
2007	135	3	7	16	16	21	15	14	5	2	0	1	-
2008	241	3	7	10	12	15	15	15	8	8	7	-	-
2009	279	3	12	17	21	13	13	11	5	3	1	<1	-
2010	221	<2	6	9	18	13	15	14	13	4	4	<2	-
2011	178	-	<1	6	10	16	13	17	10	13	8	5	3
2012	94	3	5	25	14	16	11	10	11	5	-	-	-
2013	138	4	17	17	20	14	9	9	8	2	<1	-	-
2014	71	8	21	24	14	11	8	6	7	-	-	-	-
2015	152	3	17	28	15	9	14	8	6	1	1	-	-
2016	136	7	11	22	20	22	9	5	3	-	1	-	-
2017	96	6	6	17	21	20	9	11	6	2	1	-	-
2018	94	-	6	15	29	21	12	11	5	-	-	1	-
2019	67	15	6	12	13	16	10	15	7	3	1	-	-
2020	69	3	7	17	25	16	10	9	7	4	1	-	-
2021	57	3	7	24	11	5	3	3	1	-	-	-	-
2022	105	5	21	21	20	10	3	7	9	8	0	1	0
2023	140	16	15	19	18	18	12	24	9	5	1	3	0
2024	161	18	25	31	23	16	15	17	9	3	3	1	0
2025	97	4	7	26	19	17	10	3	1	2	0	0	0

Table A4. 9. Estimated hatch dates, from hunter-harvested wings, for juvenile sage-grouse in Oregon, 2025.

	Males			Females			All Chicks		
Period	n	%	Cumulative %	n	%	Cumulative %	n	%	Cumulative %
< May 1	3	8	8	1	2	2	4	4	4
May 1–7	6	15	23	1	2	3	7	7	11
May 8–14	6	15	38	20	34	38	26	27	38
May 15–21	10	26	64	9	16	53	19	20	58
May 22–28	5	13	77	12	21	74	17	18	75
May 29–Jun 4	4	10	87	4	7	81	8	8	84
Jun 5–11	5	13	100	5	9	90	10	10	94
Jun 12–18	0	0	100	3	5	95	3	3	97
Jun 19–25	0	0	100	1	2	97	1	1	98
Jun 26–Jul 2	0	0	100	2	3	100	2	2	100
Jul 3–9	0	0	100	0	0	100	0	0	100
Jul 10–16	0	0	100	0	0	100	0	0	100

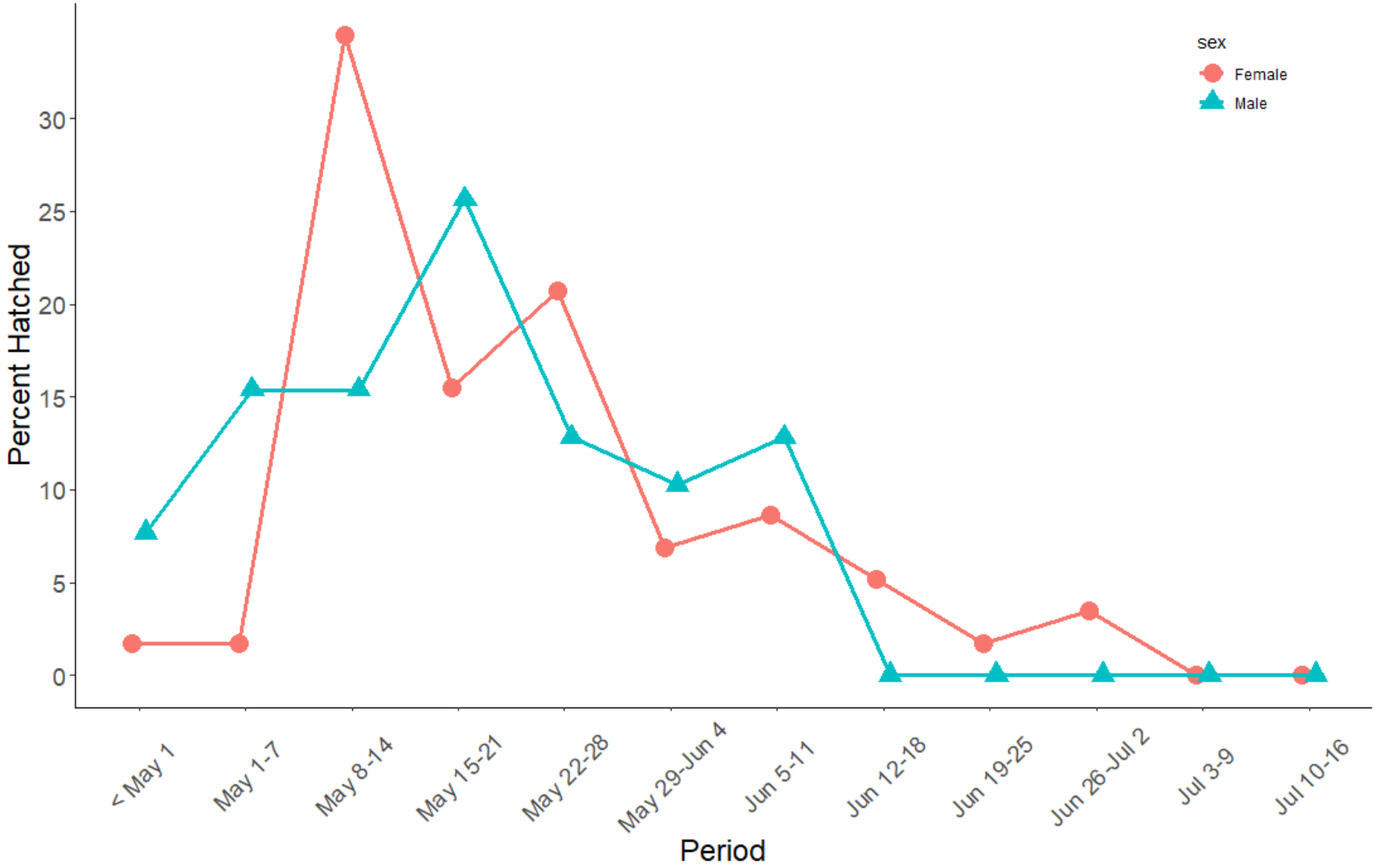


Figure A4. 4. Estimated hatch dates of male and female juvenile sage-grouse (% hatched during period), from hunter-harvested wings, Oregon, 2025.

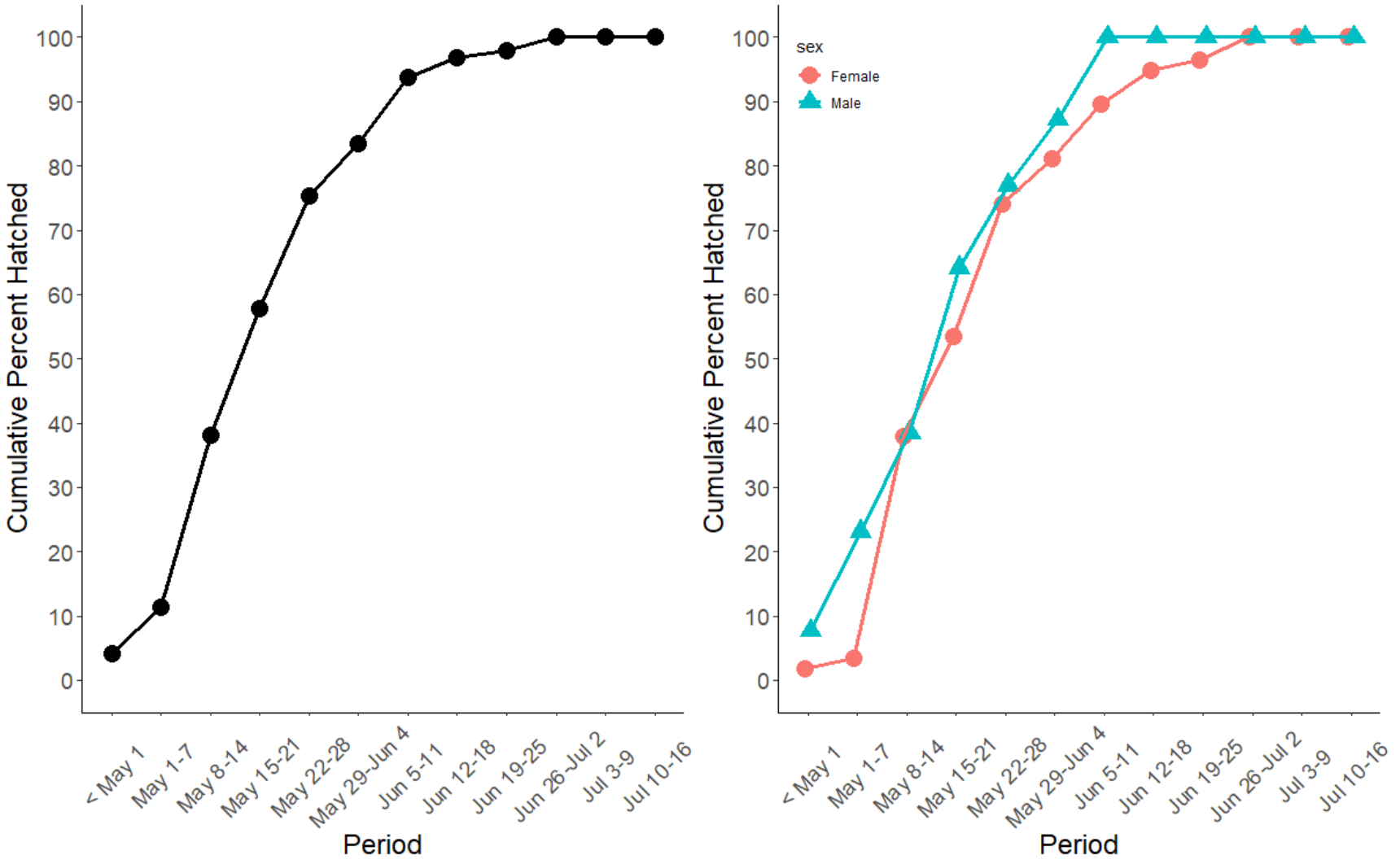


Figure A4. 5. Estimated hatch dates of male and female juvenile sage-grouse (cumulative % hatched during period), from hunter-harvested wings, Oregon, 2025.

Annual Turnover

Analysis of annual turnover provides a rough estimate of adult mortality, assuming population stability. As in previous years, the data for annual turnover, based on the proportion of yearlings in the fall harvest, could not support an unbiased analysis. Few yearling males were identifiable in 2025 (n = 5), likely due to early nesting in Oregon, corresponding to an early start of the primary molt. Generally, the timing of breeding and nesting in Oregon is earlier than those populations in the eastern portion of the sage-grouse distribution and in populations occupying higher elevations (Connelly et al. 2011), leading to a comparatively earlier molt in Oregon. Thus, the proportion of juveniles in the fall harvest of each sex was compared to the proportion of adults and yearlings (combined) of each sex to examine annual turnover (Table A4.10). This method is valid if one assumes the proportion of juveniles equals the annual loss of yearlings and adults. If the population was stable, annual mortality of adult and yearling males would be 52%, and annual mortality of adult and yearling females would be 44% (based on the 32-year average; Table A4.10).

Table A4. 10. Estimated annual turnover (%) of adult sage-grouse, assuming population stability, Oregon, 1993–2025.

	Males		Females	
Year	Young	Adults/Yearling	Young	Adults/Yearling
1993	54	46	41	59
1994	54	46	36	64
1995	44	56	31	69
1996	60	40	46	54
1997	61	39	49	51
1998	56	44	44	56
1999	60	40	52	48
2000	45	55	43	57
2001	61	39	49	51
2002	64	36	52	48
2003	50	50	47	53
2004	57	43	47	52
2005	47	53	43	57
2006	47	53	48	52
2007	33	67	25	75
2008	68	32	46	54
2009	58	42	55	45
2010	55	45	44	46
2011	42	58	43	57
2012	27	73	31	69
2013	69	31	50	50
2014	31	69	31	69
2015	61	39	56	44
2016	51	49	41	59
2017	45	55	36	64
2018	37	63	46	53
2019	54	46	44	56
2020	50	50	39	61
2021	48	52	37	63
2022	47	53	55	45
2023	70	30	53	48
2024	50	50	58	42
32-yr Avg	*52*	*48*	*44*	*56*
2025	43	57	36	64

Conclusions

Oregon's sage-grouse hunting seasons are based on a long history of population monitoring and research and are conservatively managed pursuant to Section 8 of the 2025 Oregon Sage-Grouse Conservation Assessment and Strategy (CAAS): Sage-grouse Management Protocols. The current permit system allows ODFW to closely control legal harvest of sage-grouse. Each year, the estimated fall sage-grouse population sizes within each WMU are calculated based on the abundance estimates from the spring breeding population model. This methodology was updated in 2025 to reflect the best available science outlined in the 2025 CAAS. Conservative rates of survival and production are applied to the estimated spring breeding population abundance within each WMU to derive the estimated fall population. First, a conservative rate of adult survival from spring to fall (S=0.7) is applied to the estimated spring breeding population, yielding the number of adult male and female sage-grouse surviving until fall. Next, the long-term (1993–2025) weighted-average sex ratio obtained from hunter harvested wings (1 male: 1.82 females) is applied, yielding the estimated number of females in the fall population. Lastly, a conservative rate of production (R=0.6 chicks per hen) is applied, yielding the number of juveniles in the fall population. Note, the long-term (1993–2025) average number of chicks per hen is R=1.5, while the lowest estimate of production recorded during this timeframe is R=0.6. The estimated fall population is calculated as the total number of surviving adult males and females, in addition to the number of juveniles. As each of these rates (e.g., survival and production) are conservative, this estimate represents the minimum fall population.

In 2025, ODFW estimated the minimum fall population of sage-grouse within the 9 WMUs where sage-grouse hunting is permitted as 27,492 birds (Table A4.11). ODFW offered 695 permits, of which 508 tags were purchased, and an estimated 458 individuals chose to hunt. The number of authorized permits increased for the 2025 hunting season compared to the 2022–24 hunting seasons (640–670 permits) to reflect the population increase observed statewide in 2025. Additionally, production estimates were high in 2022 (1.92 CPH), 2023 (2.50 CHP), and 2024 (2.25 CPH), supporting increased breeding and fall population estimates and leading to ODFW's increase in authorized permits for the 2025 hunting season. Despite the apparent increase in the estimated spring and fall population in the Silvies WMU, no permits were offered in this unit in response to the Falls wildfire due to concerns the number of permits was lowered (-

25) in response to the Cow Valley and Durkee wildfires (July–August 2024), which significantly impacted sage-grouse habitat within the Beulah WMU.

While the CAAS allows for harvest of up to 5% of sage-grouse populations in hunted units, managers currently recommend a permit allocation that would allow for 1–2% harvest. This accounts for incorporation of the newly developed population model (2025) while keeping available permits at similar levels to previous hunting seasons, as detailed in Section 8 of the CAAS. Additionally, habitat conditions, including current wildfires, drought, recovering post-fire habitat, and otherwise impaired habitat warrant a conservative approach. This harvest strategy is well within the guidelines suggested by the Western Association of Fish and Wildlife Agencies (Connelly et al. 2000). In addition, Oregon's harvest rate is well below the <11% harvest rate identified as unlikely to influence sage-grouse populations in Nevada and Colorado (Sedinger et al. 2010).

Compared to other states that offer a sage-grouse hunting season, Oregon's hunting season is likely the most conservative:

- Oregon's sage-grouse season is limited-entry for each WMU.
- Sage-grouse are not hunted range-wide in Oregon. Hunting is permitted in only 9 of 21 WMUs where sage-grouse occur (Figure A4.1).
- In certain cases, WMUs are divided into sub-units with separate permit allocations to address uneven distribution of hunters or other management or research needs (e.g. North/South Wagontire sub-WMU and Whitehorse/Trout Creek Mountains sub-WMU).
- Permits are allocated to harvest no more than 3% of the estimated fall population in hunted WMUs (typically 2% or less in practice).
- Each permit holder is allowed to harvest only 2 sage-grouse per season.
- In 2025, estimated harvest of sage-grouse was 419 birds, 1.5% of the minimum fall population estimate of 27,492 sage-grouse within hunted WMUs or sub-WMUs.

Through the collection of hunter-harvested wings, Oregon's sage-grouse hunting season provides crucial demographic data regarding the structure of sage-grouse populations in Oregon. This data would be costly or unfeasible to collect through other means.

Table A4. 11. Estimated fall sage-grouse population, maximum allowable harvest, hunter statistics, expected harvest, and permit allocation in Oregon wildlife management units (WMUs) where sage-grouse harvest is permitted, 2025.

WMU	Estimated Fall Population	Harvest Limit (5%)	Birds/ Hunter[a]	Hunter Participation Rate[a]	2024 Permits	Expected Harvest (# birds)
North Wagontire	1,501	75	0.69	0.76	30	16
Beatys Butte	5,237	261	0.86	0.62	90	48
Steens Mtn.	2,967	148	0.97	0.65	60	38
Warner	2,632	132	0.94	0.76	80	57
Beulah	2,903	145	0.80	0.58	125	58
Malheur River	3,752	188	0.49	0.61	110	33
Owyhee	1,558	78	0.46	0.51	45	11
Trout Creek Mtn.	3,610	180	1.31	0.70	45	41
East Whitehorse	3,334	167	1.23	0.65	110	88
Total	19,624	982	-	-	670	303

[a]Hunter statistics based on average from hunter harvest survey by Data Analysis Unit (DAU) for years 2019–2024.

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Appendix V – Wildfires within Sage-Grouse Core and Low-Density Habitats, July–September 2026

Oregon experienced an active wildfire season during the summer of 2026, likely exacerbated by below average precipitation and above average temperatures during the winter of 2025–26, and spring of 2026. During July–September 2026, 50 wildfires ranging in size from 1–579,170 acres burned a total of 761,372 acres within sage-grouse core (544,869 ac) and low-density habitat (216,503 ac) in Oregon. Impacted Sage-Grouse Priority Areas for Conservation (PACs), listed from greatest area burned to least, are the Soldier Creek PAC, Crowley PAC, Drewsey PAC, Steens PAC, Paulina PAC, Baker PAC, Burns PAC, Cow Valley PAC, Trout Creeks PAC, Brothers PAC, and Cow Lakes PAC (Figures A5.1–A5.6; Table A5.1). Within core habitat, 53 occupied or occupied-pending leks fell within a 2026 fire perimeter (Table A5.1). These populations must be closely monitored over the next several years to assess the impacts of the wildfires on local populations and inform post-fire recovery of affected sagebrush-steppe habitats.

Table A5. 1. Wildfire summary within sage-grouse core (PACs) and low-density habitat, 2026.

Habitat Type	PAC Name	PAC Area (acres)	Total Fires[a]	Total Burned (acres)	% PAC Area	Leks Burned[b]
Core	Baker	284,815	2	12,665	4.4 %	0
Core	Brothers	386,936	2	1,268	0.3 %	0
Core	Bully Creek	498,006	2	96	0.0 %	0
Core	Burns	76,845	1	11,631	15.1 %	0
Core	Cow Lakes	350,613	7	1,010	0.3 %	0
Core	Cow Valley	405,489	3	7,866	1.9 %	4
Core	Crowley	588,519	5	176,526	30.0 %	16
Core	Drewsey	442,015	1	81,188	18.4 %	2
Core	Paulina	556,698	4	28,254	5.1 %	4
Core	Soldier Creek	405,039	3	178,027	44.0 %	18
Core	Steens	549,101	8	43,304	7.9 %	7
Core	Trout Creeks	476,988	1	3,031	0.6 %	0
Low-Density	Low-Density	4,801,450	32	216,503	4.5 %	2

[a]Several wildfires burned multiple PACs and low-density habitat. Overall, 50 wildfires occurred within sage-grouse habitat in 2026.
[b]Number of occupied or occupied-pending leks (based on the 2026 lek conservation status) within wildfire perimeters in each PAC. Overall, 50 occupied or occupied-pending leks fell within a 2026 wildfire perimeter.

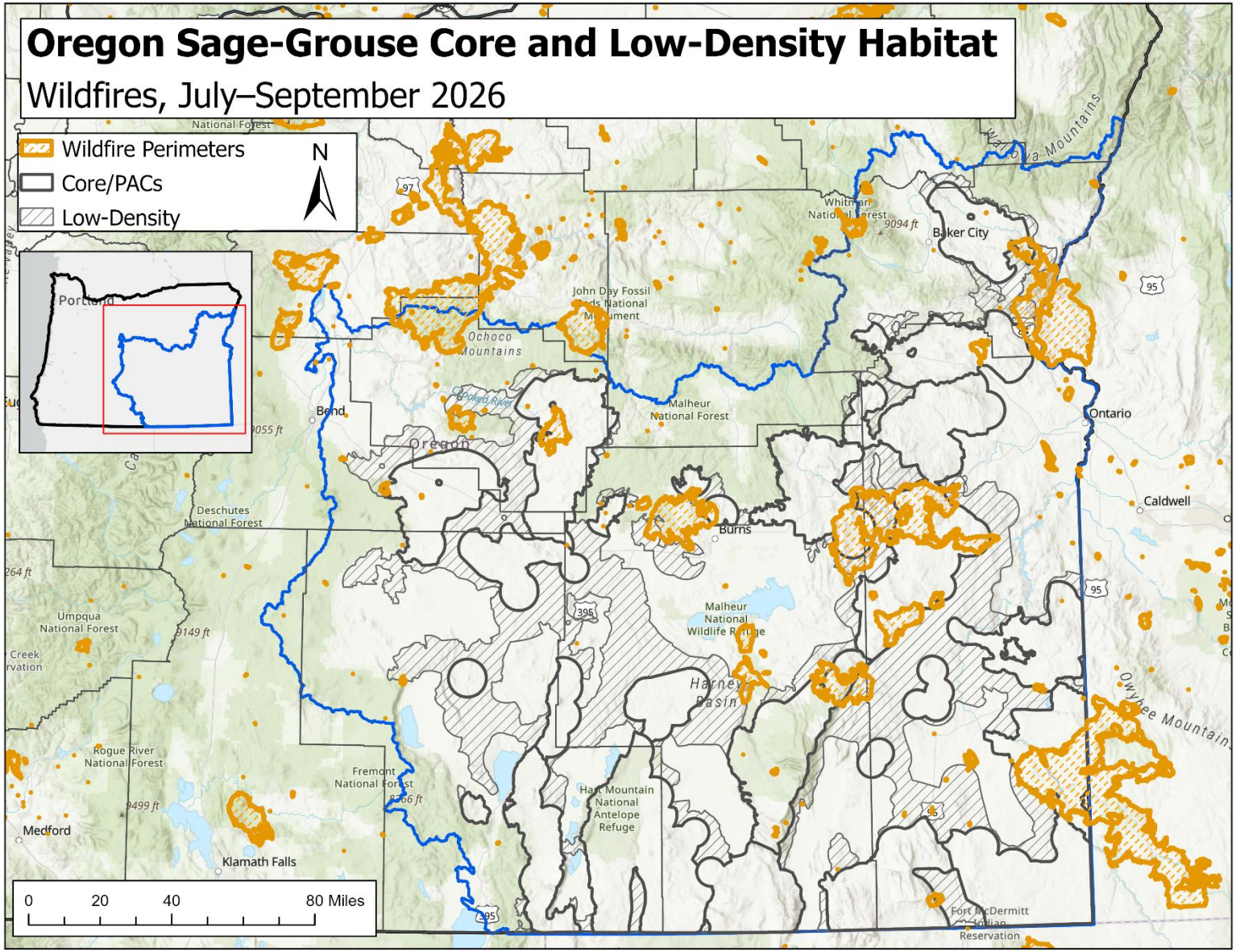


Figure A5. 1. Wildfire perimeters in Oregon sage-grouse core and low-density habitat, 2026.

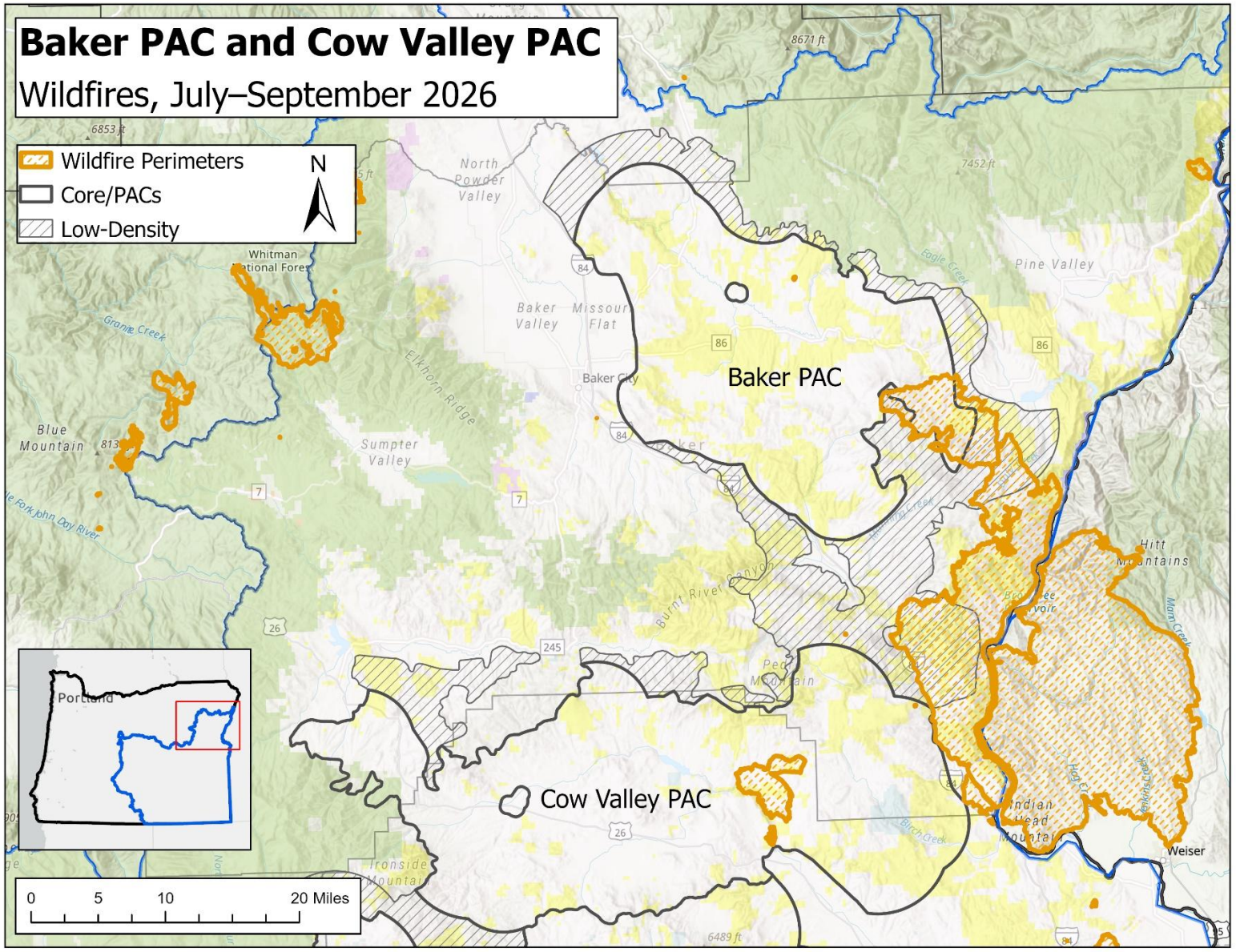


Figure A5. 2. Wildfire perimeters in the Baker and Cow Valley sage-grouse PACs and adjacent low-density habitat, 2026.

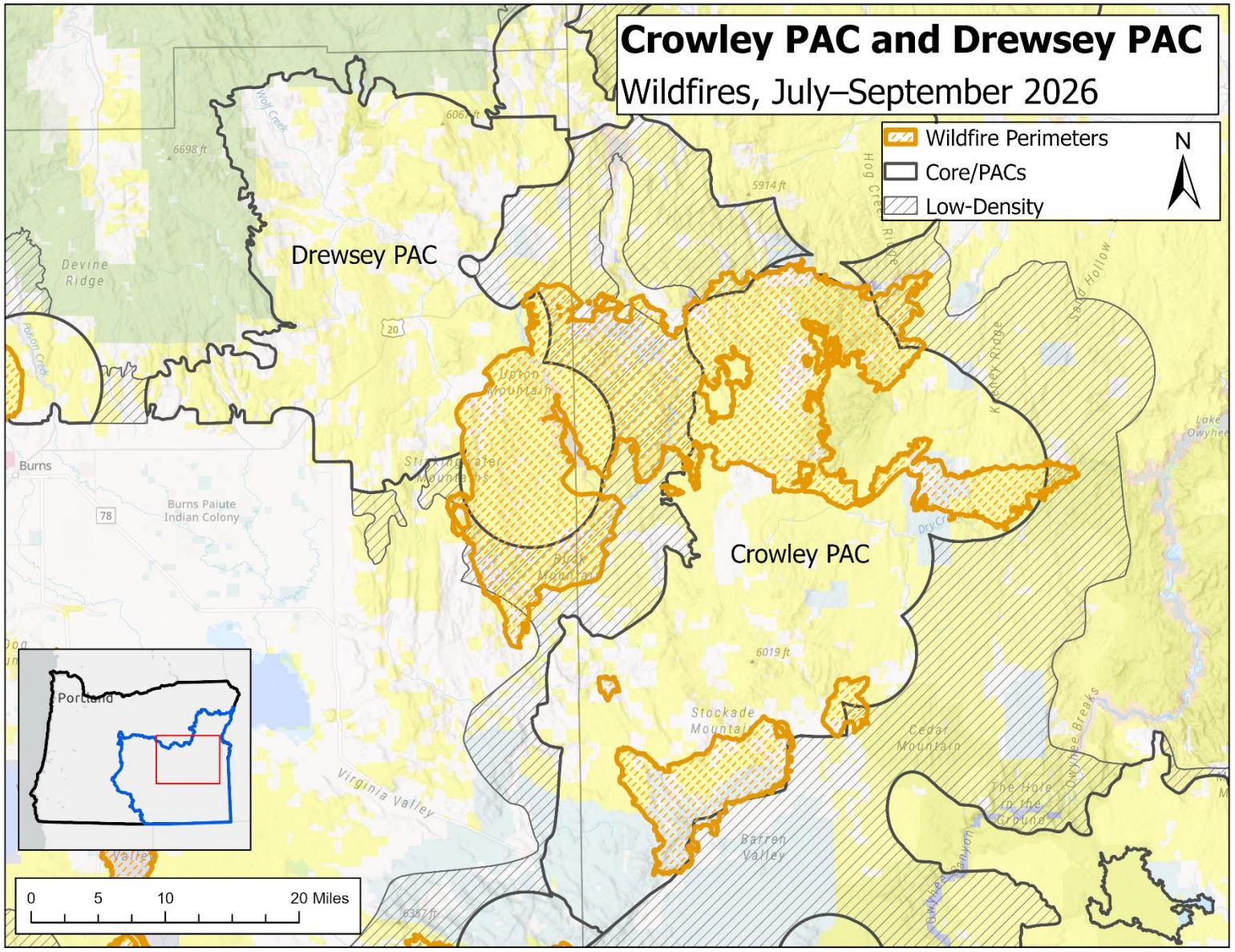


Figure A5. 3. Wildfire perimeters in the Crowley and Drewsey sage-grouse PACs and adjacent low-density habitat, 2026.

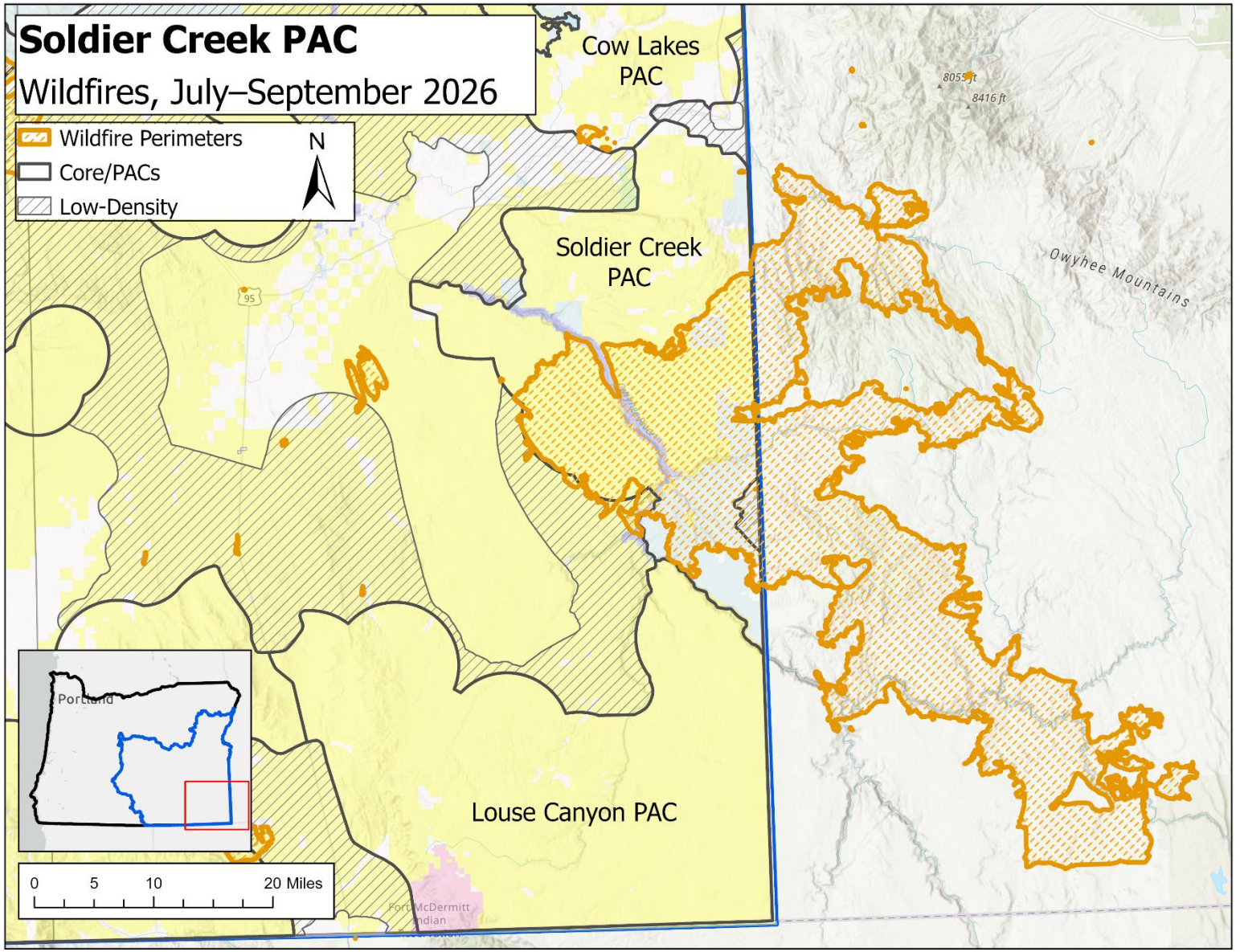


Figure A5. 4. Wildfire perimeters in the Soldier Creek sage-grouse PAC and adjacent low-density habitat, 2026.

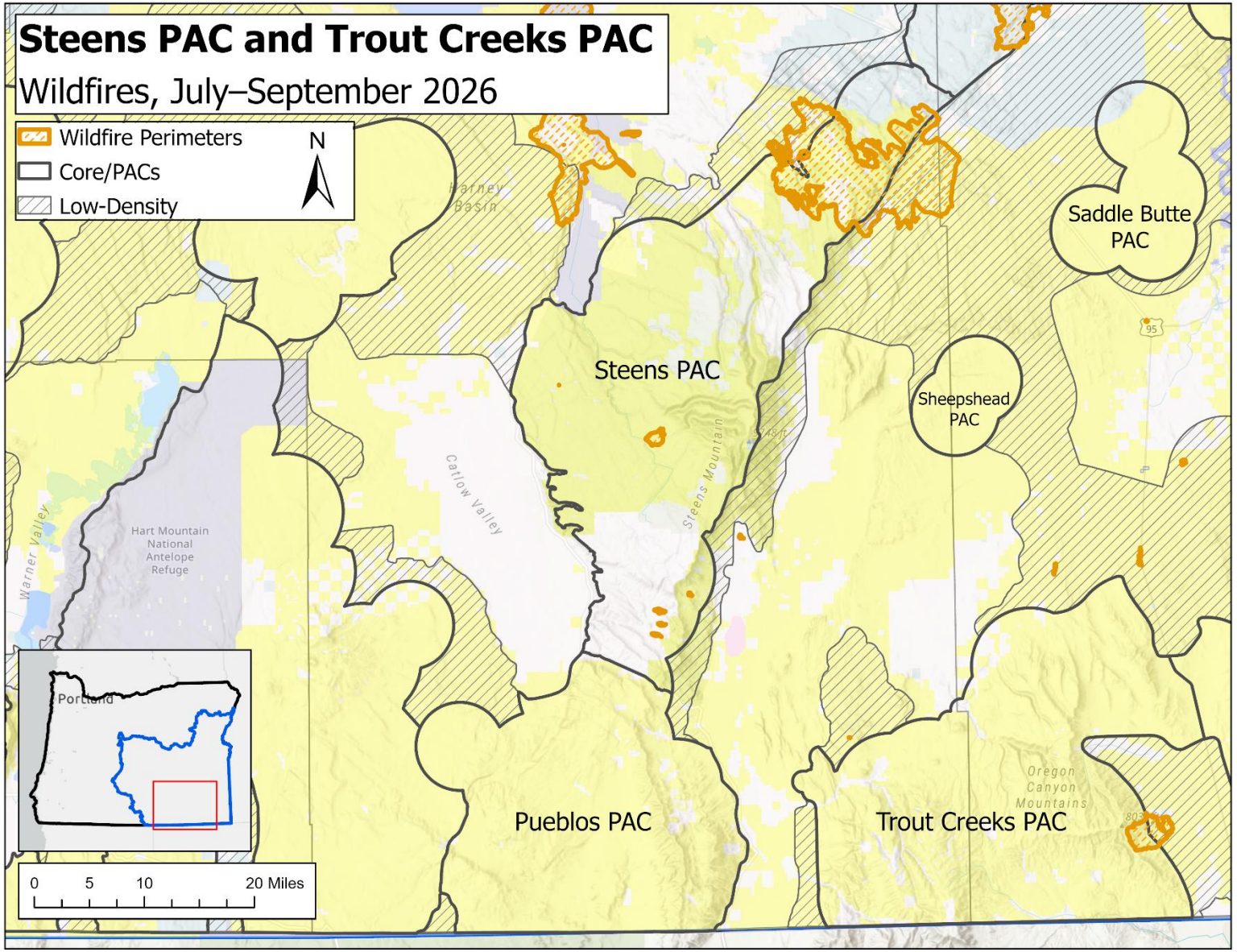


Figure A5. 5. Wildfire perimeters in the Steens and Trout Creeks PACs and adjacent low-density habitat, 2026.

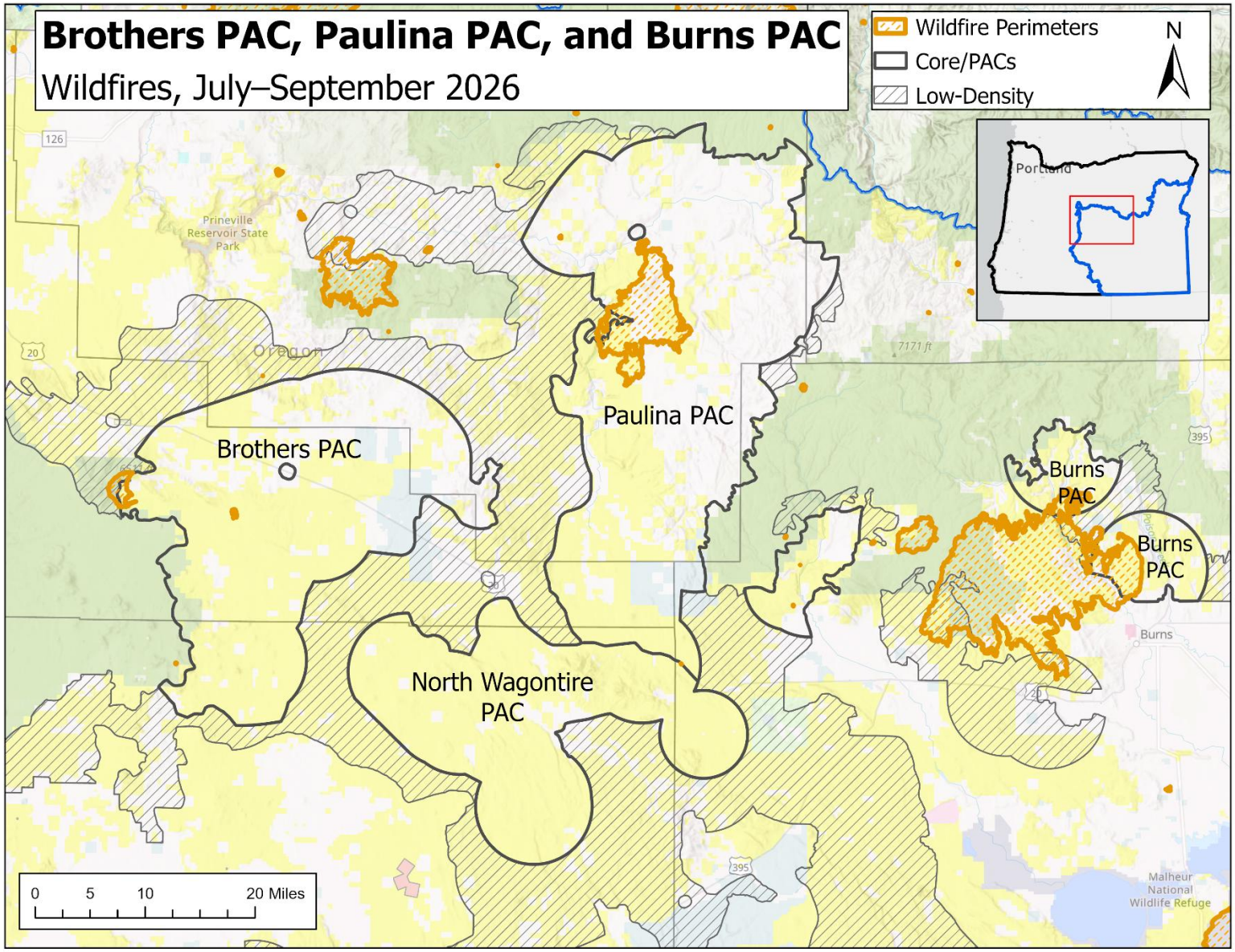


Figure A5. 6. Wildfire perimeters in the Brothers, Paulina, and Burns PACs and adjacent low-density habitat, 2026.