

# Goose Lake Redband Trout SMU

ESA Designation:  
**Not Warranted 2000**

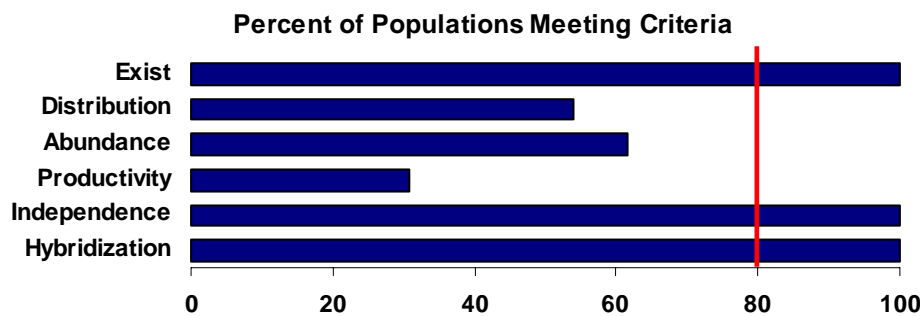
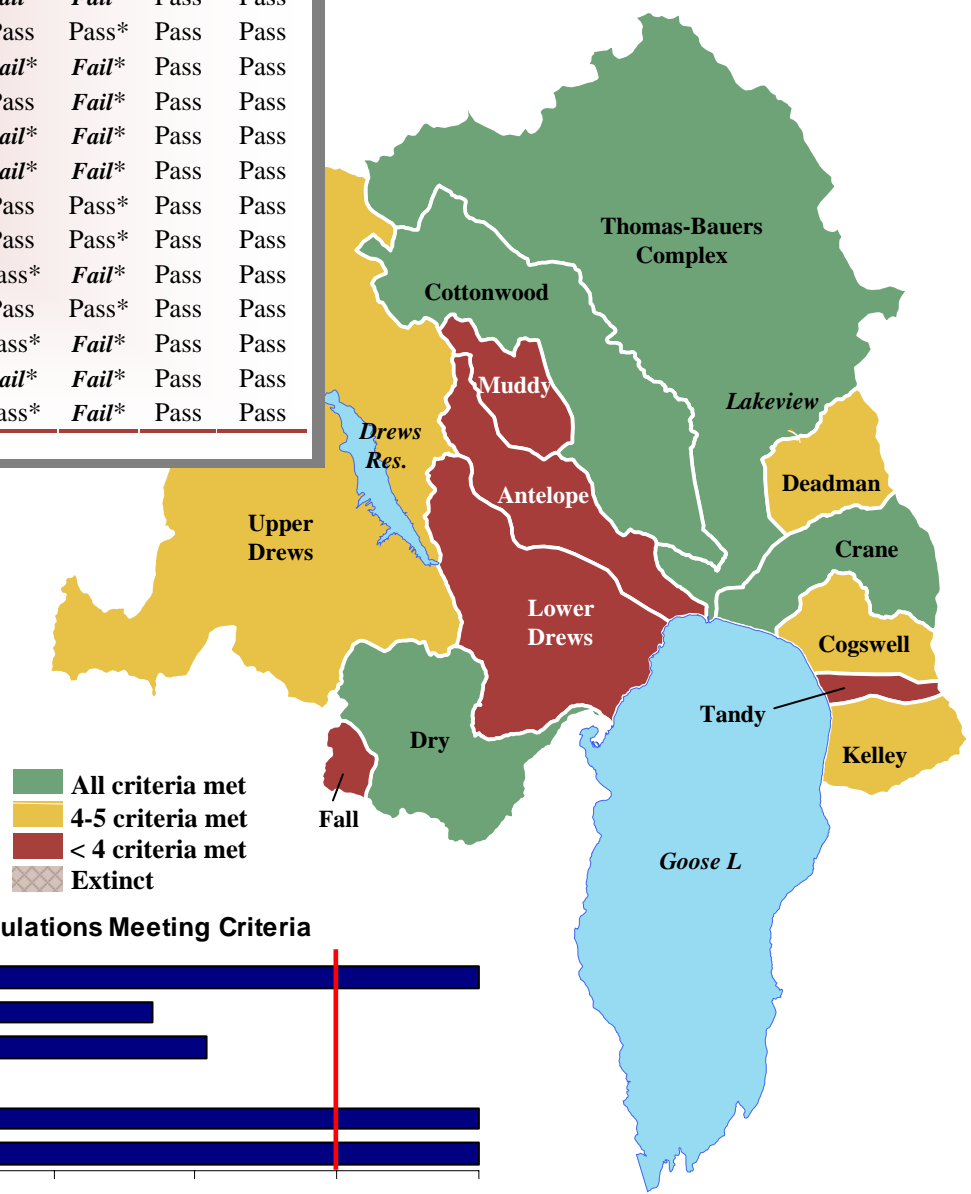
State Status:  
**Vulnerable**

Interim Assessment:  
**At Risk**

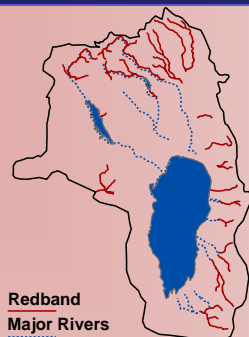
The Goose Lake Redband Trout SMU is comprised of thirteen populations. Six populations exist in the California, but are not assessed in this review. Spawning and resident fish distribution is fragmented and limited to headwater and mid-order streams. Abundance of redband trout fluctuates with instream flows and habitat quality. Migratory redband trout are present when rearing conditions in Goose Lake are adequate, though irrigation activities and degraded habitat quality hinder movement between the lake and the spawning grounds. Eighty percent of the populations meet three of the six interim criteria, thereby classifying this SMU as 'at risk'. Limited data sets and inferences from other information for populations in this SMU provide a qualified level of confidence in the assessment of the interim criteria.

Population	Exist	Dist.	Abund.	Prod.	Ind.	Hybrid
Fall	Pass	Fail	Fail*	Fail*	Pass	Pass
Dry	Pass	Pass	Pass	Pass*	Pass	Pass
Lower Drews	Pass	Fail*	Fail*	Fail*	Pass	Pass
Upper Drews	Pass	Fail	Pass	Fail*	Pass	Pass
Antelope	Pass	Fail*	Fail*	Fail*	Pass	Pass
Muddy	Pass	Fail*	Fail*	Fail*	Pass	Pass
Cottonwood	Pass	Pass	Pass	Pass*	Pass	Pass
Thomas-Bauers Complex	Pass	Pass	Pass	Pass*	Pass	Pass
Deadman	Pass	Pass	Pass*	Fail*	Pass	Pass
Crane	Pass	Pass	Pass	Pass*	Pass	Pass
Cogswell	Pass	Pass	Pass*	Fail*	Pass	Pass
Tandy	Pass	Fail*	Fail*	Fail*	Pass	Pass
Kelley	Pass	Pass	Pass*	Fail*	Pass	Pass

\* Inferred



## Distribution - Fail



- Populations with connections to Goose Lake have migratory fish and potentially inter-mix with other populations. Cottonwood, Tandy, Muddy, and Upper Drews have no access to the lake or other populations due to irrigation withdrawal and migration barriers. Redband trout in Fall Creek are isolated above a barrier falls. These populations have no opportunity to mix with other populations.
- Distribution in Tandy, Muddy, Antelope, and Lower Drews is not documented. These populations are assumed to be extremely limited until distribution can be better assessed.
- The distribution of redband trout varies according to annual precipitation and fluctuation of instream flows.

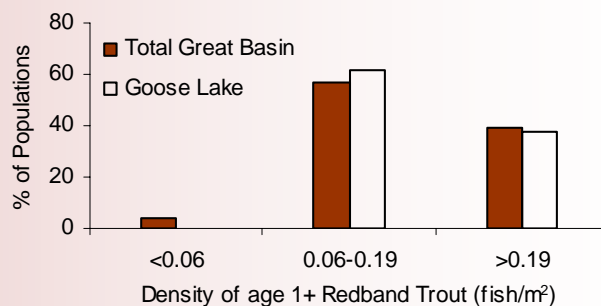
## Productivity - Fail

- Quantitative data necessary to assess productivity do not exist. The criterion is assessed based on the qualitative evaluation of distribution, abundance, presence of large fluvial fish, habitat quality, and presence of non-native species.
- Populations where distribution and abundance are limited and not connected to habitats capable of supporting multiple life history fail the productivity criterion.

## Additional Information

- Non-native cutthroat trout are not present in the Goose Lake Basin and not a threat to redband trout. All populations pass the hybridization criterion.
- Goose Lake redband trout are unique and thought to be a distinct subspecies. Genetic analysis suggest they evolved from the Sacramento redband trout lineage and are most similar to the Warner Lake basin redband trout
- Habitat quality in Goose Lake basin is severely degraded. Thirty nine percent of streams with redband trout are temperature limited. Water resources within the basin are over appropriated and irrigation diversions hinder migratory fish movement. Lower floodplain reaches have eroding banks, headcuts, a loss of meanders, and incised channels.
- Goose Lake provides highly productive rearing environment for redband trout but few drainages retain adequate and regular connectivity to the lake.

## Abundance - Fail



- A population survey estimated 102,352 (+/- 32%) age 1+ redband trout in Goose Lake Basin in 1999. Mean density for the SMU was considered moderate relative to densities throughout Eastern Oregon. Estimates were made during high water years and are expected to fluctuate with instream flow and habitat quality.
- Populations in Antelope, Lower Drews, Muddy, and Tandy do not have current measures of abundance and have low quality habitat. These populations fail the abundance criterion until they can be better assessed. These populations are not included in the survey mentioned above.
- Data are limited pertaining to the abundance of adfluvial redband trout in Goose Lake.

## Independence - Pass

- Hatchery rainbow trout were stocked in all populations between 1925 and 1961. Stocking programs were eliminated in streams in 1961. Because stocking programs do not currently exist in moving waters all populations pass the reproductive independence criterion.
- Current stocking activities occur in Cottonwood Meadows Reservoir where domestic rainbow trout rarely escape.
- Effects of interbreeding are unknown. A recent sample from Thomas Creek indicates interbreeding with hatchery rainbow trout.