MEMORANDUM
Oregon Department of Fish and Wildlife

Date: March 9, 2011
To: Ron Anglin, Wildlife Division Administrator
From: Colin Gilin, State Wildlife Veterinarian, South Willamette Watershed District
Subject: Game Birds and Disease Risk

Background

Due to the confined nature of holding and rearing pens, game birds raised in captivity provide a unique setting for transmission of disease. Game birds such as pheasants, chukar and quail have demonstrated susceptibility to a wide range of diseases including bacterial, viral, and fungal infections. However, documentation of disease outbreaks may be less likely to be published in captive settings. When diseases occur, animals are either treated or they can be removed or depopulated and the pens sanitized and repopulated. There has not been a general inclination to publish such information in a journal or as a research finding and in most cases the incident and information would be handled on a local basis by the producer or their veterinarian.

Disease outbreaks have occurred in pen-raised game birds throughout the literature (Pennycott 2000, Veterinary Record Vols. 116, 141-143, 146). In 1986, the Association of Fish and Wildlife Agencies authorized the Fish and Wildlife Health Committee to contact national organizations associated with the game bird industry and sought support for increased disease testing. This followed outbreaks of Salmonella pullorum in pen-raised birds in Utah, Mycoplasma gallisepticum in South Carolina, and avian influenza (H5N2 subtype) in Oregon.

Other diseases known to affect game birds in the wild and captivity include coccidiosis and blackhead (Histomoniasis), Aspergelllosis, Candidiasis, fowl typhoid, erysipelas, avian tuberculosis, ulcerative enteritis (Clostridium colinum) navel ill, botulism, herpesvirus, avian pox, Eastern Equine Encephalomyelitis, Avian Influenza, and Newcastle disease as a partial list (Friend and Franson 1999). Parasitic diseases are also reported in game birds and include Avian malaria (Hemospoidiosis), Trichomoniasis, tracheal worms, gizzard worms (Cheilospiura spinosa) and a variety of round worms (nematodes) and flat worms (cestodes). The potential for diseased domestically raised game birds to infect domesticated poultry or populations of wild birds is likely low. But because the probability is not zero, ODFW should consider precautions and measures to protect the Oregon wildlife resource.

Since captive animals released into the wild provide an opportunity for potentially releasing diseases they may carry, surveillance for disease through testing should be conducted. There are many good reasons to conduct surveillance of captive animals prior to release. A section in discussing captive propagation in Friend (2006) states:
“Wildlife in captive-propagation programs (including aquaculture) can bring pathogens from nature into propagation facilities. Some of these pathogens may emerge as a cause of significant diseases within the propagation program and/or for species they share environments with once propagated stock are released. Other pathogens may enter the propagation programs from external sources (e.g., feed, transient wild or feral animals). In addition to releases of infected propagated stock, pathogens may also be transported from the propagation area by water discharges from the site, the movements of transient animals that have fed on infective material, and other means.

Combating disease in captive wildlife propagations is as crucial as it is for domestic animal production and requires a similar level of attention. In both situations, disease jeopardizes the investments, but the larger concerns are associated with the spread of disease beyond the propagation facility; within agriculture, this has resulted in the development of industry, national, and international programs and infrastructures designed to minimize disease risks and respond to disease outbreaks. Deemed necessary to protect economic returns associated with agriculture, these programs also protect human health from zoonotic diseases. Programs of similar rigor do not exist for wildlife propagation and release programs.”

Disease in captive-reared wildlife began with the husbandry of wildlife by humans. Disease affecting captive wildlife varies with the species and is influenced by the conditions under which they are held.

The potential for infectious disease occurring within captive wildlife propagation programs is partially a function of the health status of animals used for breeding, environmental conditions, animal numbers within the facility, and other factors (Jacobson 1993; Huchzermeyer 2002). Close proximity among animals in propagation facilities lends to transmission of infectious disease agents that may be carried by any number of individuals in the population. Also, environmentally persistent organisms shed by infected animals may be sustained at threshold levels within propagation facilities and infect subsequent groups of animals (Friend 2006).

Existing Rules

As part of The Oregon Department of Agriculture (ODA) State Veterinarian’s authority under Oregon administrative rules, poultry or other avian species such as game birds, entering the state require an import permit from the ODA Animal Health and Identification Division. This permit must be accompanied by a Certificate of Veterinary Inspection (CVI) documenting that the birds have tested negatively for several diseases under the National Poultry Improvement Plan (NPIP). Specifically, those diseases include Salmonella pullorum, Mycoplasma gallisepticum, M. synovia, M. meleagridis, Salmonella enteritidis, and Avian Influenza. NPIP is required for interstate shipment of (poultry) chicks and eggs across state lines. NPIP is not required for instate sale or transport. Birds entering Oregon must be accompanied by an import permit and CVI including NPIP information.

Rationale
The following is my veterinary and wildlife health opinion concerning game birds acquired instate (hatched and raised in Oregon) and their subsequent release in the wild for hunting, bird dog training or field trials.

Information gathered from historical and recent records documents the risk of having an infectious disease occur in game birds held in captivity. The most recent Oregon case occurred in 2007 when game birds from Washington were imported into Oregon and released in spite of a positive *Mycoplasma gallisepticum* test of the flock. This breech of disease protocol subsequently involved an investigation by both the Washington and Oregon Department of Agriculture. Resulting actions included depopulation of the domestic flock. Other cases have occurred and have been reported in Oregon (SCWDS Briefs 1986 2.3).

The issue of greatest concern involves disease being transmitted from domestically raised and released game birds to: 1) all wild birds, 2) backyard or commercial poultry operations, or 3) public health (the risk to public health is considered no greater than disease transmission from poultry or wild game birds). Commercial poultry facilities maintain a high level of biosecurity to avoid pathogen transmission from outside sources. A greater risk occurs between species of the same taxi and family that come in direct contact with one another.

One risk factor sometimes overlooked in the discussion of disease transmission is wild bird disease being transmitted to penned birds. This risk factor not only threatens the health of penned birds, but threatens wild populations where penned and potentially infected birds are released. Controlling this risk factor can be managed, in part, with facility design standards. Additionally, the potential exists for disease to be transmitted at facilities that have poultry in close proximity to pen raised game birds. Facility design, disease testing, and regulation of importations are the best methods for mitigating any disease issues between domestic poultry and penned raised birds that will be released into wild settings.

To curtail disease transmission involving penned game birds, Oregon’s neighboring states all test using various protocols involving NPIP diseases. So, there is precedent for testing of instate bred game birds released in Oregon. Examples of other state’s testing protocols include:

Nevada (Dr. Peregrine Wolff): “NV has no specific rules, just recommendations from the veterinarian. In the past, NDOW has asked for *M. gallisepticum* and *S. pullorum* on 10% of the flock.”

California (Dr. Pam Swift): “Many of our DFG-licensed game bird breeders work closely with the California Poultry Federation which, through a cooperative agreement, administers the NPIP in California. Several years ago, avian influenza (AI) was added to the NPIP. Game birds are routinely tested (AI) at the breeding sites as well as on the hunt clubs.”

Washington (Mick Cope): “There are no testing requirements for someone to raise and/or release birds for dog training or field trials. Now, more broadly, we require game farms and shooting preserves to test for AI annually and also require other disease testing if a
flock exhibits signs of disease. We do not require, but recommend NPIP certification. WSDA requires birds to have a health certificate to enter into the state, but not necessarily NPIP certification.”

Idaho (Dr. Mark Drew): “We require NPIP testing of either the flock or the birds to be imported for those birds being brought into Idaho. For birds released in Idaho, we require the same NPIP testing prior to release. If the birds are from an NPIP certified flock, we allow release of birds for shooting operations or for our releases on WMA. Same applies for bird dog training and for competitive shoots.”

Based on the above information, I believe disease testing of domestically raised and released game birds should be a regulated standard for the industry. By applying administrative rule designed to provide disease surveillance of domestically raised game birds, we will be better able to control and reduce the probability of pathogen introduction into domestic flocks or the wild. The development of a disease surveillance protocol should include input from industry and other stakeholders. Our goal of risk management should be to reduce the likelihood and implications of the introduction of disease.

As an example: All game bird propagation and holding facilities should be required to annually meet a minimum testing standard through a simple blood test for *Salmonella Pullorum, Mycoplasma gallsepticum* and *Mycoplasma synovia* conducted by an accredited Oregon licensed veterinarian. Sampling protocol should require that each pen holding birds be sampled as a percentage or number of birds (e.g. 20 birds or 20 % if more than 100 birds). Additionally, a health certificate from the veterinarian should be required within 30 days prior to the release or sale of game birds.
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