Avian Influenza H5N1 Surveillance

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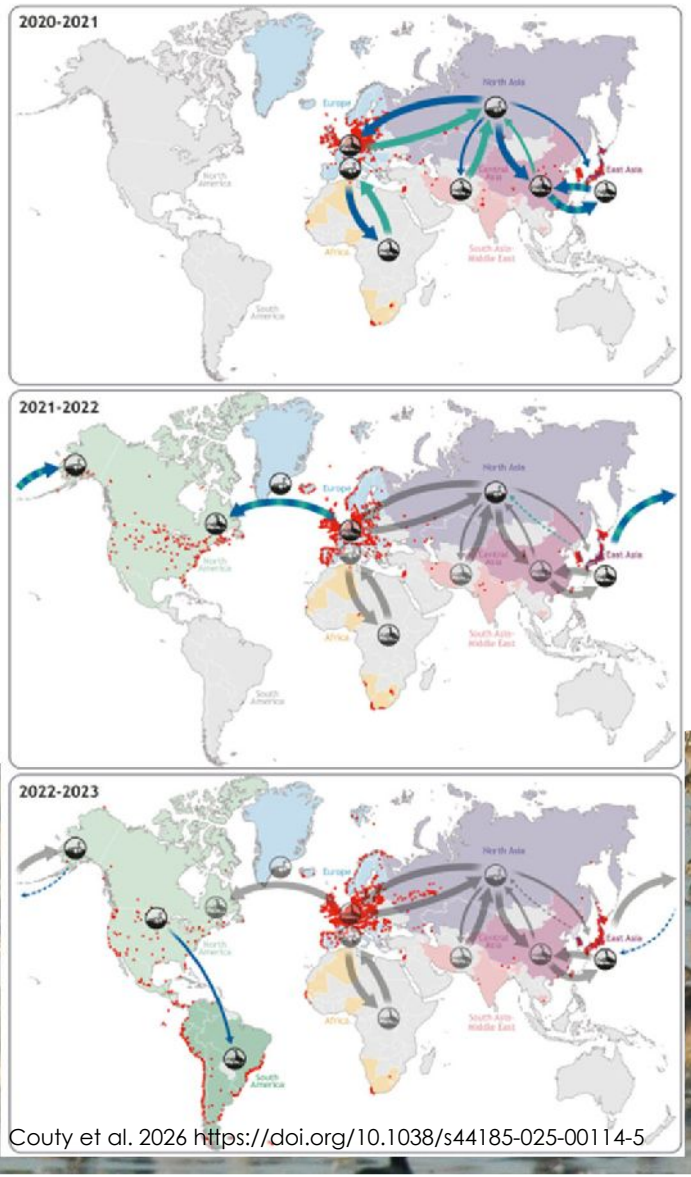
Photo credit: K. Rogers

Avian Influenza (Influenza A viruses)

- Near-global spread of Eurasian H5 clade 2.3.4.4b
  - In 2020, various H5 subtypes in circulation in Europe, Asia, & Africa
  - By fall 2021, H5N1 emerged as dominate virus in Europe impacting wild birds & domestic birds
  - By winter 2021, H5N1 reached the Americas & beyond
    - Atlantic coasts of Canada (Dec 2021) & United States (Jan 2022)
    - Central America (fall 2022) & South America (winter 2022-23)
    - Antarctica (Feb 2024)
  - Impacting a higher diversity of wild birds & mammal species



Couty et al. 2026 https://doi.org/10.1038/s44185-025-00114-5

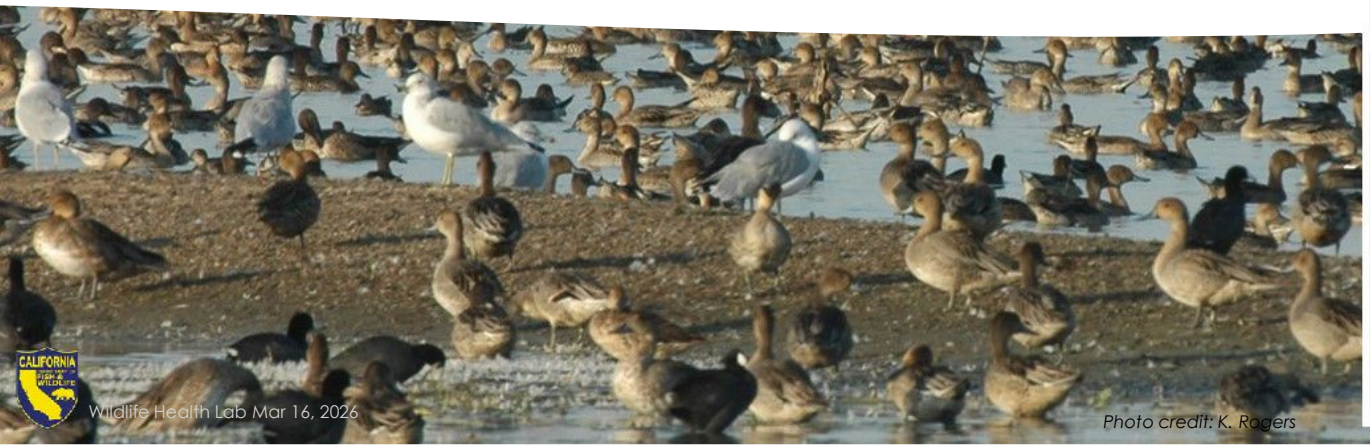


Photo credit: K. Rogers

Susceptibility

Waterfowl species

- Anseriformes (ducks, geese, & swans) are natural reservoir for [low pathogenic] avian influenza viruses
  - Viruses shed in saliva, nasal secretions, & feces
  - Close contact & water is important for transmission among these species
  - Contamination of local environment is possible if heavily used by waterfowl shedding virus (typically fall migration)
- Avian influenza H5N1 (H5 clade 2.3.4.4b)
  - Dabbling ducks (e.g., mallards, teals, wigeons, pintails, etc.)
    - Can carry virus, but less likely to develop infection
    - Enables virus spread through short- & long-distance movements
  - Diving ducks, geese, & swans
    - Highly susceptible to fatal infection when exposed to virus in shared aquatic habitats

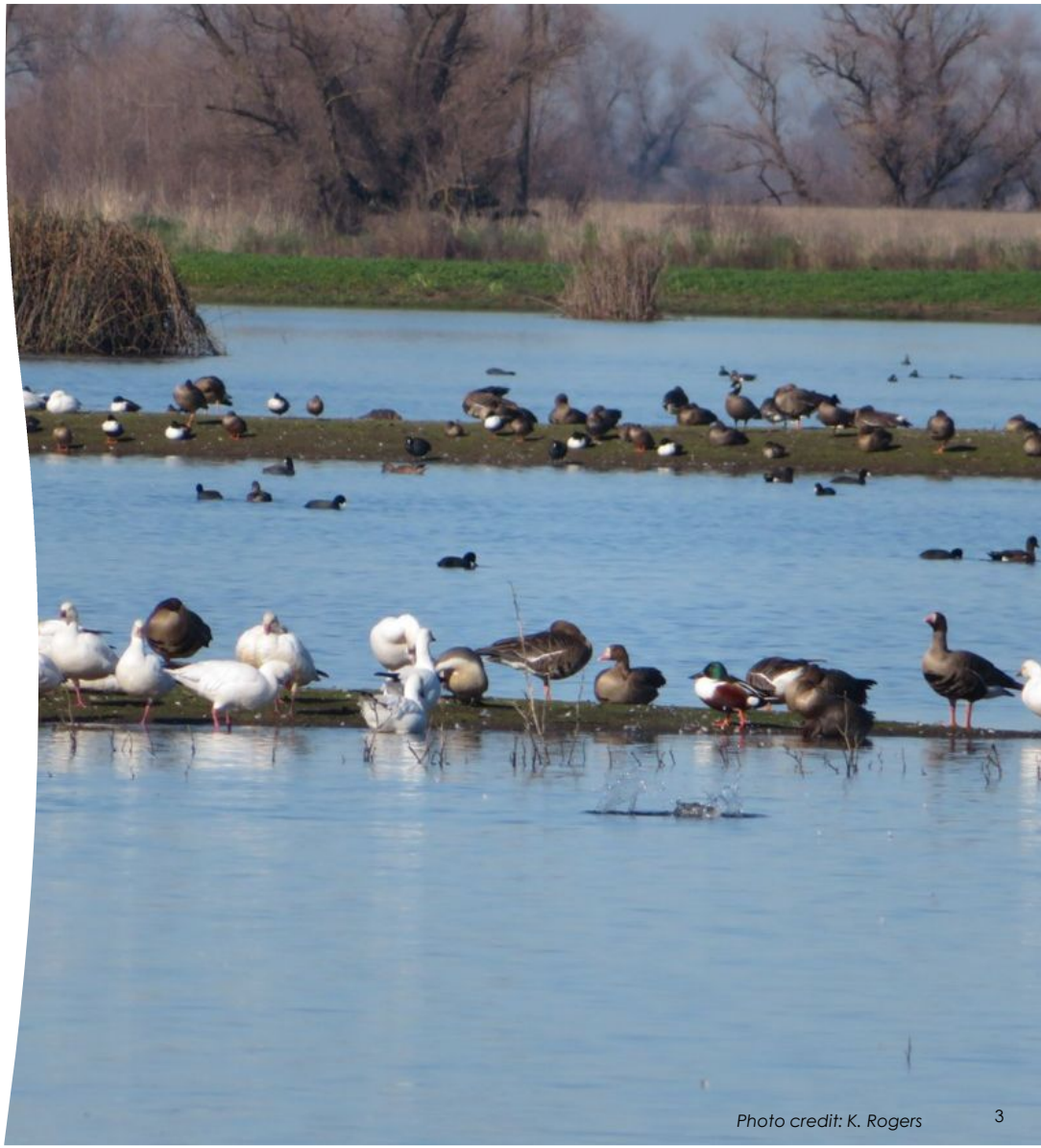


Photo credit: K. Rogers

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Susceptibility

Non-waterfowl species

- Avian influenza H5N1 (H5 clade 2.3.4.4b)
  - Waterbirds (e.g., gulls, shorebirds, pelicans, etc.)
    - Highly susceptible if in close association with infected waterfowl &/or habitat contaminated with waterfowl saliva & feces
  - Raptors (eagles, hawks, falcons, & owls)
    - Highly susceptible to fatal infection through prey
      - Infected birds, such as ducks & shorebirds
      - Rodents, exposed to virus in heavily contaminated habitat
  - Scavengers (vultures, ravens, & crows)
    - Highly susceptible to fatal infection if feeding on infected birds or other animals
  - Upland gamebirds (e.g., doves, pigeons, quails, & turkeys)
    - Relatively lower risk since little to no habitat overlap with waterfowl
  - Small songbirds
    - Relatively lower risk since little to no habitat overlap with waterfowl

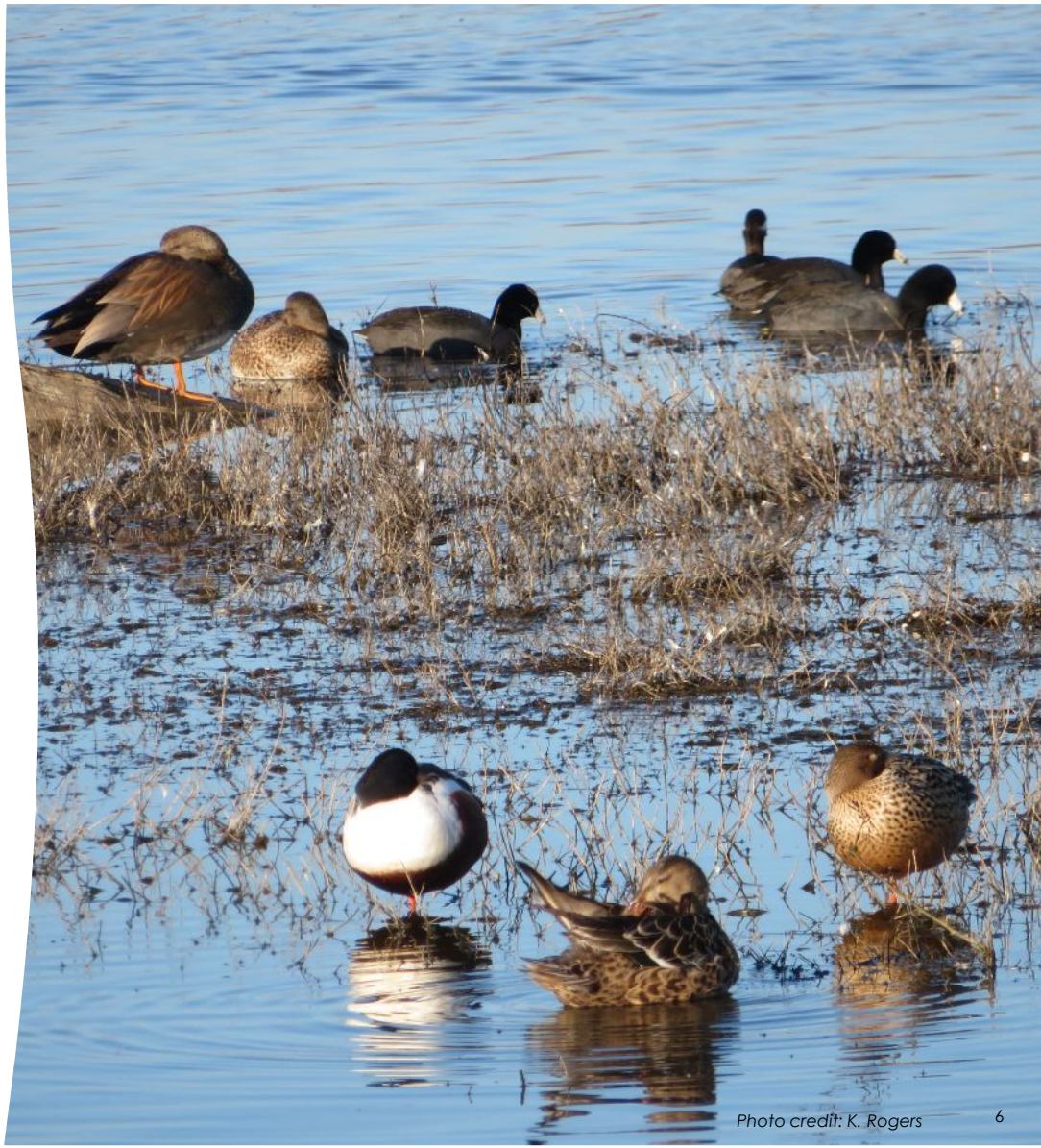
Photo credit: K. Rogers

Clinical Signs

- Variable depending on species & individual animal (e.g., age, other debilitation or stress)
- Asymptomatic infection possible
  - Most likely dabbling ducks
  - Possibly other waterfowl or waterbird species
- Clinical infection (incubation generally 2-14 days)
  - Sudden death
  - Neurological (star gazing, head tick, abnormal position of head & neck, incoordination, swimming in circles, tremors, seizures)
  - Weakness, lethargy, or depression
  - Cloudy eyes
  - Ocular discharge
  - Diarrhea

Wild Bird Surveillance

- Apparently healthy birds
  - Live-trapped
    - Typically, spring & summer banding campaigns
    - Mostly resident birds & some migratory birds
  - Hunter-harvested
    - Waterfowl hunting season (Oct - Feb in U.S.)
    - Mostly migratory & some resident waterfowl
    - Focus primarily on dabbling duck species
- Mortality-based
  - Year-round, opportunistic
  - Helps identify species susceptible to clinical or fatal infection
  - Focus primarily on mortality events involving multiple dead birds (typically ≥ 5)
    - More easily detected than individual dead bird
    - Increases likelihood of obtaining positive detection
    - Only portion of birds tested so does not represent total number of birds that may have died of infection



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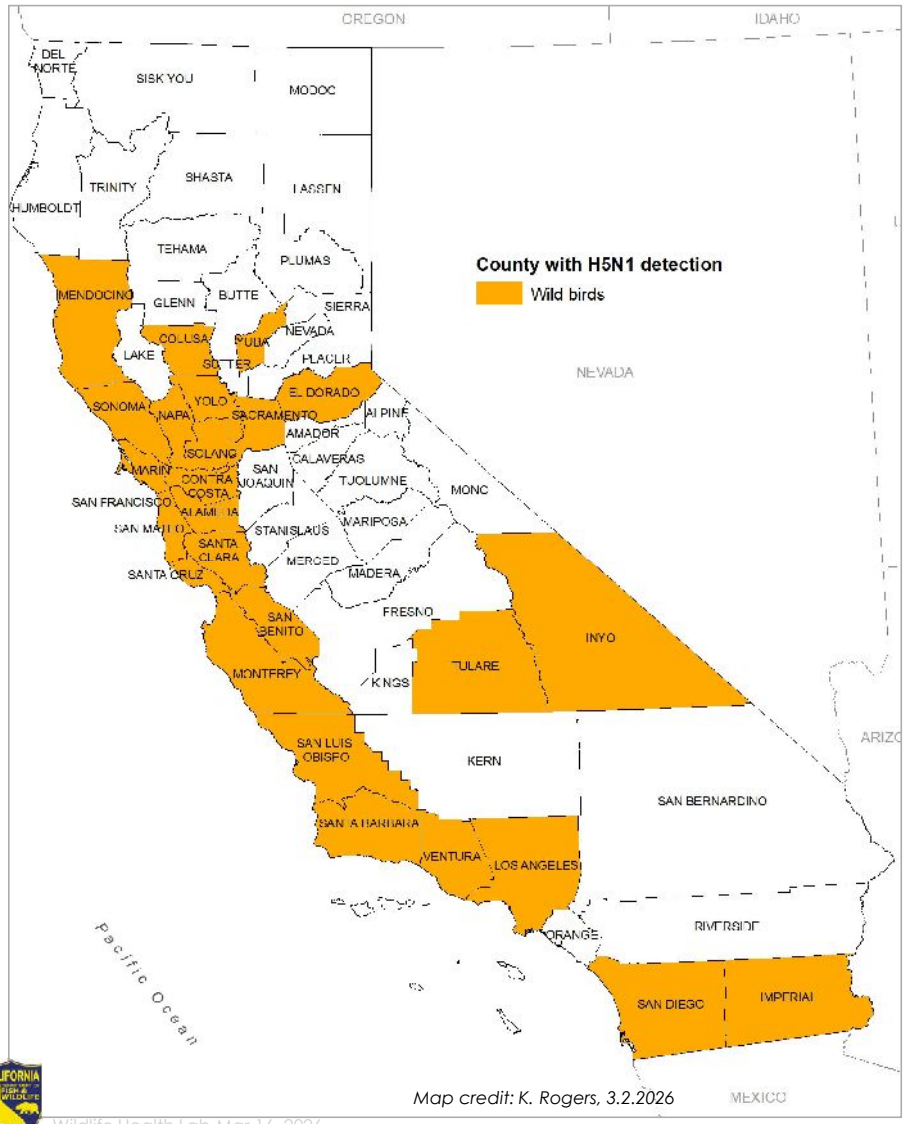


Map credit: K. Rogers, 3.2.2026

Avian Influenza H5N1

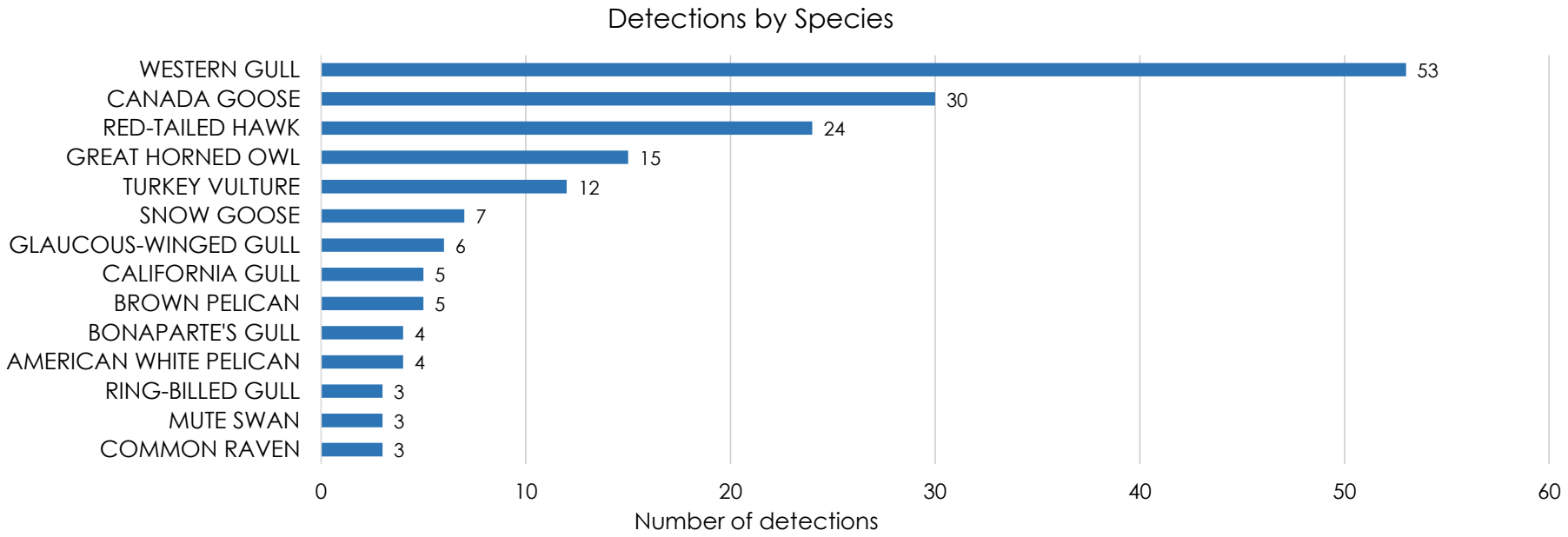
Wild Bird Mortality Surveillance, Jul 2025 - Feb 28, 2026

- Last detection 2024-25 season, May 2025
  - May 2: turkey vultures (2); Lassen County
- No detections, Jun - Sep 2025
- Fall - winter detections, Oct 2025 - present
  - Oct 2-20: first detections
    - Canada geese (4); San Luis Obispo, El Dorado, & Tulare counties
    - Western gull (2); San Diego & Santa Barbara counties
    - Red-tailed hawk (1); Sonoma County
- Tested to-date: approx. 934 birds (all partners)
- Detections since Oct: 210 birds from 26 counties
- 40 different bird species
  - 8 waterfowl species
  - 8 waterbird species
  - 13 predator & scavenger species
  - 6 shorebird & wader species
  - 3 seabird species

PRELIMINARY DATA – RESULTS SUBJECT TO CHANGE

Avian Influenza H5N1

Wild Bird Mortality Surveillance in California, Jul 2025 - Feb 2026



PRELIMINARY DATA – RESULTS SUBJECT TO CHANGE

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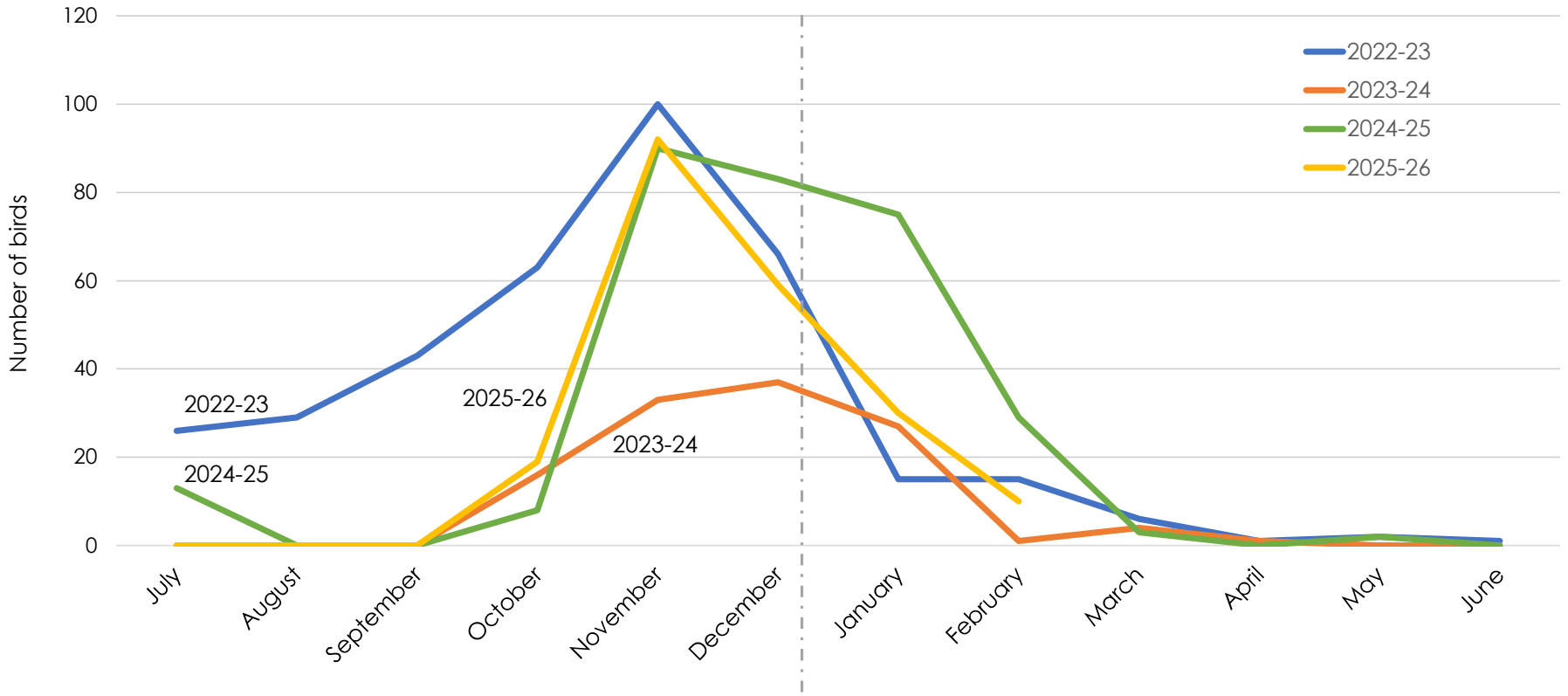
Avian Influenza H5N1

Wild Bird Mortality Surveillance in California, Jul - Jun

Detections by Month per Season



PRELIMINARY DATA – RESULTS SUBJECT TO CHANGE

Surveillance Summary

- 2022-23 & 2023-24 virus activity
  - Generally coincided with seasonal bird migration
    - Highest number of detections in fall (usually peaking in Nov) & early winter
    - Detections declined through late winter & spring
  - Waterfowl, specifically geese, made up a higher proportion of detections, followed by other waterbirds, & predators & scavengers
  - Localized outbreaks at ponds, sewage treatment plants, & reservoirs
- 2024-25 & 2025-26 virus activity
  - Generally coincided with seasonal bird migration
  - Waterbirds, especially gulls & shorebirds, made up a higher proportion of detections
  - Localized mortality of Canada geese & mute swans in some areas

PRELIMINARY DATA – RESULTS SUBJECT TO CHANGE

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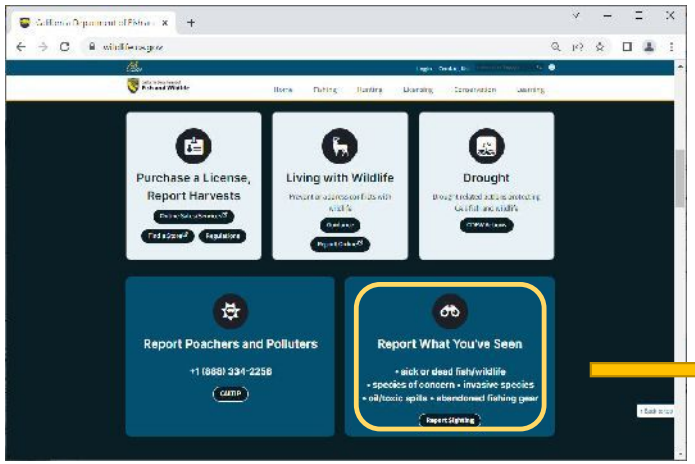
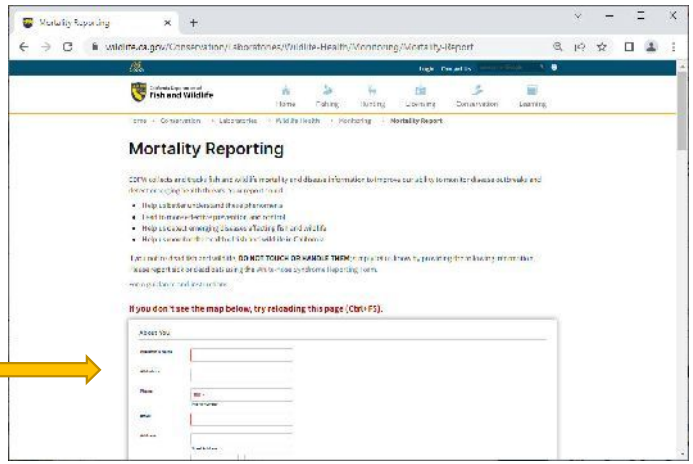
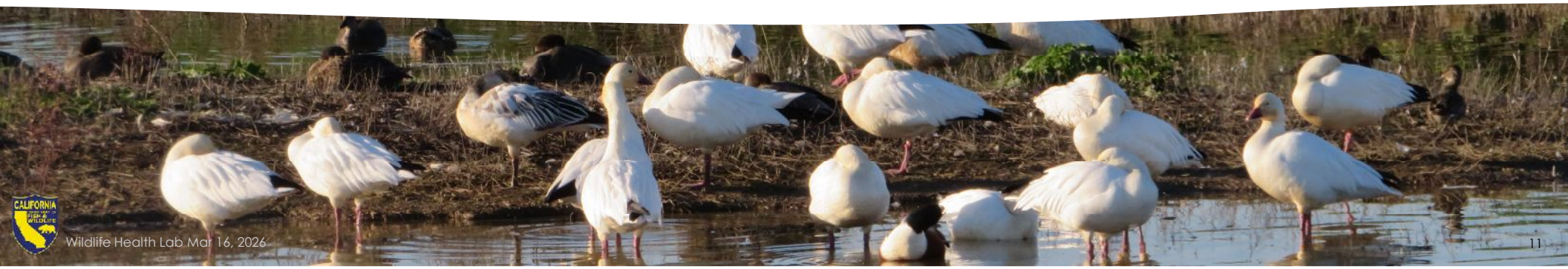
Mortality Reporting

- Report dead wildlife using the CDFW web-based mortality reporting system
  - https://wildlife.ca.gov/Conservation/Laboratories/Wildlife-Health/Monitoring/Mortality-Report







Reducing Risk for Hunters

- Harvest only waterfowl that look & behave healthy (e.g., actively flying)
- Do not handle or eat game that appears sick or otherwise abnormal
- Do not handle wild birds that are obviously sick or found dead
- Field dress & prepare game outdoors or in a well-ventilated area away from poultry, falconry birds, & pets
- Wear rubber gloves or other impermeable disposable gloves while handling & cleaning game
- Remove & discard intestines soon after harvesting & avoid direct contact with intestinal contents
- Do not eat, drink, smoke, or use a cell phone while handling dead game
- Wash hands often, & after handling game, with soap & water (or alcohol-based hand sanitizer if soap & water are unavailable), & clean knives, equipment & surfaces that had contact with game
- Keep harvested game cool (either with ice or refrigeration), below 45 °F until processed, & then refrigerate or freeze
- Thoroughly cook all game to an internal temperature of 165°F before consuming
- Clean & disinfect clothing, footwear & hunting gear after use

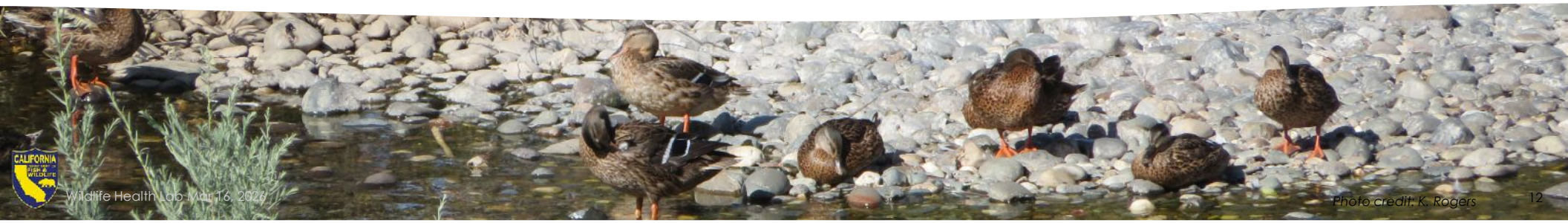


Photo credit: K. Rogers

Reducing Risk for Falconry Birds & Hunting Dogs

- Avoid hunting in areas with known or suspected disease outbreaks
- Avoid using falconry birds for hunting waterfowl
  - If falconry birds are used, it is best not to allow bird to ingest harvested prey
- Do not feed raw meat, organs, or other tissues from harvested waterfowl or poultry to falconry birds or hunting dogs
- Bathe dogs with pet shampoo after hunting outings
- Consult with your veterinarian if changes in behavior or illness are observed in falconry bird or hunting dog

Photo credit: K. Rogers

Vaccination

- USDA has authority over animal vaccination for avian influenza
  - No vaccines are currently approved for use for domestic poultry or captive birds
    - Recent exceptions: limited experimental vaccination for endangered California condors & Hawaiian monk seals
  - Recent push for research into possible future vaccination programs
- Possible complications with wider vaccination
  - International trade restrictions on vaccinated poultry (significant loss of export revenue)
  - Need effective test to differentiate between vaccine virus & active outbreak
  - Vaccination might mask avian influenza infections
    - Virus mutations into more virulent strains
    - Silent spread of viruses to humans & other animals (because virus may circulate without causing mortality)

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Thank you

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Native Wildlife Rehabilitation

VISION: *To support continued advancements and high ethical standards of wildlife rehabilitation in California; to increase recognition and appreciation of practitioners dedicated to the rehabilitation of wildlife; and to promote awareness of the intrinsic value of wildlife and human-wildlife coexistence.*

Wildlife Rehabilitation Facilities (Map Viewer)

Facility List (text only)

Laws and Regulations

Continuing Education and Resources

Wildlife Rehabilitation in Action

Resources

CDFW regularly provides technical guidance and assistance to support permitted wildlife rehabilitators throughout the state.

- Human-Wildlife Conflicts Program (HWC Toolkit)
- CDFW Information Sheet: Chronic Wasting Disease, Fawn Rehabilitation (PDF)
- CDFW Information Sheet: Highly Pathogenic Avian Influenza H5N1 (PDF)
- CDFW Information Sheet: Rabbit Hemorrhagic Disease (PDF)
- Report White-Nose Syndrome, Sick or Dead Bats
- Protocols for Safe Handling and Disposal of Carcasses

§679.5(b)(4) Humane Care Standards

Raptor Rehabilitation. A permittee, their designee, sub-permittee, authorized person, or qualified handler may temporarily transfer a rehabilitation raptor to a California general falconer or master falconer licensed pursuant to subsection 670(e)(6)(C) and approved by the department as a **sub-permittee p**ursuant to subsection 679.3(b) and (c), for the purpose of rehabilitation under the requirements listed pursuant to these regulations.

A **rehabilitation raptor shall not be listed under a falconry license** and shall remain solely under a permit issued pursuant to Section 679.3.

A California general or master falconer shall release to the wild a rehabilitation raptor pursuant to subsection 670(h)(3) or return a rehabilitation raptor to the permittee or their designee no longer than **180 calendar days from the date of initial intake by the permittee or their designee.**

Notification Requirement for Diseases of Concern --- Reporting to the Department. A permittee, their designee, sub-permittee, qualified handler, or authorized person, shall notify the department in writing via email at Rehabwildlife@wildlife.ca.gov, within 24 hours of suspecting any rehabilitation animal or carcass of having a disease of concern for which the department is the appropriate public agency to notify.

The department shall provide instructions in writing via email within 7 calendar days of receiving such a notification. The department shall instruct a reporting party to euthanize or transfer the rehabilitation animal, or dispose of or transfer the carcass…

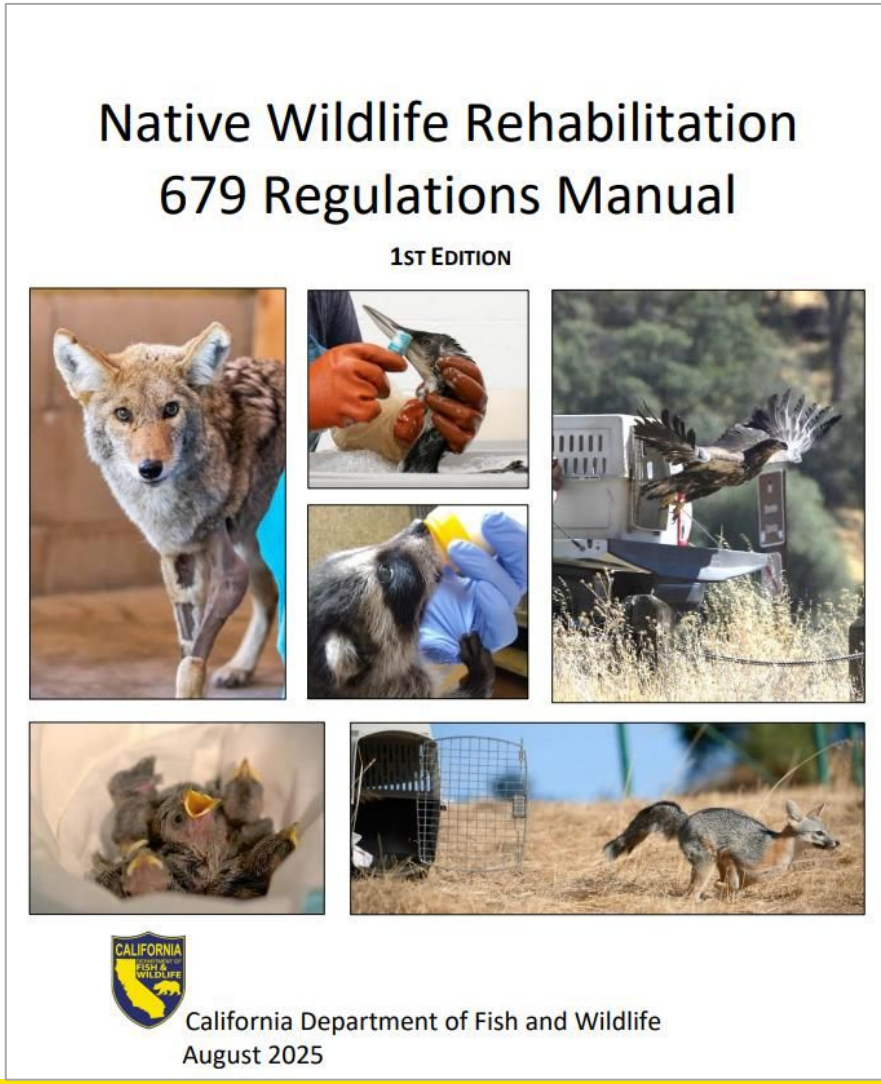
Chapter 2. Facility and Enclosure Requirements

(o) Specialty Rehabilitation Animal Requirements. A permittee, their designee, or sub-permittee if applicable, may rehabilitate a species or taxa classified as a "specialty rehabilitation animal" only under specific authorization from the department: large carnivore, ungulate, venomous snakes, **bald eagle, golden eagle, prairie falcon, peregrine falcon**.

(p) Specialty Rehabilitation Animal Enclosure Requirements for Pre-release Conditioning. Table 13

(q) Neonate and Limited Mobility Minimum Enclosure Size Requirements and Maximum Number of Animals Per Enclosure; Specialty Rehabilitation Animals. Table 14.

(r) Pre-Release Conditioning Enclosure Minimum Enclosure Size Requirements and Maximum Number of Animals Per Enclosure; Specialty Rehabilitation Animals. Table 15.



Chapter 3. Humane Care Requirements

(a) Care and Treatment Requirement.

(b) Cleaning Requirements.

(c) Common Cleaning Agents to Limit the Transmission of Communicable Wildlife Diseases. Table 16.

(d) Communicable Wildlife Diseases.

(2) A permittee, their designee, sub-permittees, authorized persons, and qualified handlers shall report any rehabilitation animal suspected or known to have a disease of concern, as determined by the Fish and Game Commission to be a communicable disease of potentially significant consequence to an affected population of native wildlife, domestic animal, or humans in California, to the proper reporting agency, as indicated in Table 17, pursuant to subsection 679.5(a)(8). **[Note: This requirement is intended to aid the investigation and monitoring of potential disease outbreaks and mortality events by the department's Wildlife Health Laboratory pursuant to Fish and Game §1008.]**

(e) Wildlife Diseases of Concern in California and the Agency to Report Confirmed or Suspected Infected Wildlife. Table 17.

(3) Highly Pathogenic Avian Influenza Virus