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Report Pursuant to House Bill 4128 (2022)

Monitoring, Preventing, and Responding to Zoonotic Diseases in Oregon

December 2022

This is a publication of the Oregon Legislative Policy and Research Office (LPRO). This report draws extensively from information gathered through questionnaires completed by liaisons from the Oregon Department of Agriculture, Oregon Department of Fish and Wildlife, Oregon Health Authority, and the Oregon State Police as well as through interviews conducted with the agency liaisons and other stakeholders. LPRO would like to thank these individuals for their time, efforts, and feedback that helped to inform this report.

STAFF

Eliot Crafton, Research Analyst
Legislative Policy and Research Office
Eliot.Crafton@oregonlegislature.gov
503.986.1525

Erin Pischke, Legislative Analyst
Legislative Policy and Research Office
Erin.Pischke@oregonlegislature.gov
503.986.1533

EXECUTIVE SUMMARY

Report Mandate

House Bill (HB) 4128, signed into law on March 2, 2022, directs the Legislative Policy and Research Office (LPRO) to prepare a report evaluating "Oregon's current framework for monitoring, preventing, and responding to zoonotic diseases" and identify options to strengthen the framework. HB 4128 directs LPRO to consult with the Oregon Health Authority (OHA), the Oregon State Police (OSP), the Oregon Department of Agriculture (ODA), and the Oregon Department of Fish and Wildlife (ODFW) as well as others with relevant expertise to carry out this work. The Act requires LPRO to submit the resulting report to a committee or interim committee of the Legislative Assembly related to public health by December 31, 2022.

Background

Zoonotic diseases, also known as *zoonoses*, are diseases or infections that can spread between animals and humans. Zoonotic diseases have been recognized as being a primary cause of disease and infection in humans and may cause economic and social concerns. Studies have shown that zoonotic diseases with an animal origin have caused ~60 percent of emerging infectious diseases in humans over the past several decades and ~72 percent of these diseases originated in wildlife.

Process

LPRO consulted with staff from state agencies—ODA, ODFW, OHA, and OSP—to evaluate current activities related to monitoring, preventing, and responding to zoonotic diseases in the state. Agencies were asked to identify liaisons to work with LPRO, who coordinated completion of a questionnaire to evaluate existing related activities. Following completion of the questionnaire, LPRO arranged follow-up interviews with agency staff. In addition, LPRO conducted interviews with four stakeholders to gain additional perspective on zoonotic diseases responses in the state.

Current Framework

Multiple state agencies undertake activities to address zoonotic diseases in the state. These agencies may undertake these activities independently, in coordination with other state agencies, or with nonstate entities, including comparable staff from neighboring states and the federal government. As reported in agency questionnaires and follow up interviews with agency staff, current efforts to address zoonotic diseases include:

- ODA—directly or indirectly—is tasked with regulating zoonotic diseases or their carriers in livestock and other domesticated animals, including by carrying out activities related to zoonotic disease monitoring, prevention, response, or enforcement;
- ODFW regulates the management of and response to all diseases occurring in wildlife that may pose a threat to wildlife populations, may affect livestock, or could cause zoonotic diseases in humans, and in some cases, ODFW may control human access to wildlife to prevent reverse zoonoses (i.e., the transmission of zoonotic diseases back to an animal);

- OHA is primarily focused on zoonotic diseases after transmission to humans has occurred. OHA also carries out activities to prevent and control zoonotic diseases through various monitoring, prevention, response, or enforcement activities, including related to vector management; and
- OSP Fish and Wildlife Division's role in regulating zoonotic diseases is primarily through enforcement, including the enforcement of statutes and rules adopted by ODA and ODFW where there is an associated criminal or violation-level penalty.

From information provided by agency staff and stakeholders, LPRO was led to understand that agencies typically respond well to zoonotic disease outbreaks, adequately and quickly communicate with stakeholders, and have working relationships with corresponding staff in neighboring states and the federal government. However, it was unclear to what extent agencies have the capacity and resources to focus on emerging threats related to zoonotic diseases, such as increasing wildland-urban interface, habitat loss and degradation, and climate change.

Framework Strengthening Opportunities

LPRO identified several potential policy options related to monitoring, preventing, and responding to zoonotic diseases based on the findings from research conducted to develop this report. LPRO does not have a position on the policy options provided below and inclusion does not represent endorsement. Further, none of the agencies interviewed asked for new or additional authority or specified additional resources needed to allow the agency to further address zoonotic diseases in the state.

Potential policy opportunities identified through communication with agency liaisons and stakeholders, include:

- clarifying or updating statutory authorities related to zoonotic diseases;
- improving communication and coordination between state agencies and also between state agencies, stakeholders, the public, and nonstate entities;
- addressing agency resource needs to allow for additional efforts related to zoonotic diseases; and
- investing in the Oregon Veterinary Diagnostic Laboratory.

Access to Full Report

The full report can be found online on the Oregon State Legislature's Publications and Reports website (https://www.oregonlegislature.gov/citizen_engagement/Pages/Publications-Reports.aspx).

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OVERVIEW

Several state agencies, independently and in collaboration, undertake efforts to monitor, prevent, and respond to zoonotic diseases in Oregon. As directed by House Bill (HB) 4128 (2022) and in consultation with four of the agencies directly responsible for efforts in Oregon to address zoonotic diseases, the Legislative Policy and Research Office (LPRO) prepared this "report that evaluates Oregon's current framework for monitoring, preventing and responding to zoonotic diseases and recommends ways to strengthen the framework."[1] For the context of this report, LPRO has interpreted "current framework" to include those activities that are undertaken by state agencies to monitor, prevent, and respond to zoonotic diseases in Oregon. Opportunities to strengthen agency efforts to address zoonotic diseases include updating statutory authority; improving communication and coordination between agencies as well as between agencies, stakeholders, and the public; and addressing various resource needs such as funding and staffing. In addition, LPRO considered the opportunity to invest in the Oregon Veterinary Diagnostic Laboratory, which many agency personnel and other stakeholders identified as integral to the state agencies' responses to zoonotic diseases.

This report presents LPRO's research findings and contains four main sections:

1. a background on zoonotic diseases;
2. a review of the current framework by which state agencies' respond to zoonotic diseases in Oregon as well as their coordination and collaboration efforts;
3. potential policy options for strengthening efforts to address zoonotic diseases in Oregon, including agency- and stakeholder-identified opportunities to strengthen the state framework; and
4. a methodology section that discusses LPRO's process for gathering the information contained in this report, including the consultation process with the agencies as well as the stakeholder interview process.

At the end of the report, appendices include the agency questionnaire and stakeholder interview questions used by LPRO.

INTRODUCTION

Many infectious diseases affecting humans originate in animals. Recent examples include Ebola, Zika, West Nile, HIV/AIDS, and coronaviruses such as SARS and COVID-19. Viruses causing these diseases were originally transmitted to humans by animals, such as bats, rodents, or primates. More than half of all human cases of infectious disease can be attributed to animal transmission.[2]

HB 4128, signed into law on March 2, 2022, directed, among other things, the Legislative Policy and Research Office to prepare a report evaluating "Oregon's current

[1] HB 4128 (2022).
[2] Cross, A.R. et al., Zoonoses under our noses. *Microbes and Infection* 21(1), (2019): 10-19, <https://doi.org/10.1016/j.micinf.2018.06.001> (last visited November 29, 2022).

framework for monitoring, preventing, and responding to zoonotic diseases" and identifying options to strengthen the framework.[3] HB 4128 directed LPRO to consult with the Oregon Department of Agriculture (ODA), the Oregon Department of Fish and Wildlife (ODFW), the Oregon Health Authority (OHA), and the Oregon State Police (OSP) to carry out this work. The Act required LPRO to submit the resulting report to a committee or interim committee of the Legislative Assembly related to public health by December 31, 2022. This report has been produced in response to that requirement.

The section of HB 4128 directing LPRO to conduct the described research and produce the resulting report is:

> SECTION 1. (1) The Legislative Policy and Research Office, in consultation with the Oregon Health Authority, the Oregon State Police, the State Department of Agriculture and the State Department of Fish and Wildlife, shall prepare a report that evaluates Oregon's current framework for monitoring, preventing and responding to zoonotic diseases and recommends ways to strengthen the framework.
> (2) The authority, the Oregon State Police, the State Department of Agriculture and the State Department of Fish and Wildlife shall consult on the report, provide information necessary for development of the report and advise on development of the report, as requested by the office.
> (3) To develop the report, the office may consult with bona fide scientific or educational institutions, as defined in ORS 498.022, state veterinarians, state agencies and any other experts with relevant expertise.
> (4) The office shall present the report to a committee or interim committee of the Legislative Assembly related to public health, in the manner provided under ORS 192.245, on or before December 31, 2022 (*HB 4128*).

Background on Zoonotic Diseases

As defined by the Centers for Disease Control and Prevention (CDC), *zoonotic diseases*, also known as *zoonoses* (singular: zoonotic disease/zoonosis), are diseases or infections that can spread between animals and humans.[4] A similar definition was provided by the Joint World Health Organization (WHO)/Food and Agriculture Organization of the United Nations (FAO) Expert Committee on Zoonoses, which in their second report defined *zoonoses* as "those diseases and infections which are naturally transmitted between vertebrate animals and man."[5]

Zoonotic diseases have, over the last several decades, been recognized as being a primary cause of disease and infection in humans with commensurate economic and social concerns. In a recent study, zoonotic diseases with an animal origin have been identified as causing the majority of (~60 percent) emerging infectious diseases in humans over the past several decades, and studies have identified that most (~72

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[3] HB 4128 (2022). For example, HB 4128 also required the Oregon Fish and Wildlife Commission to review and update the state list of prohibited species and related agency rules as well as prohibited the sale of live wildlife for human consumption with certain exceptions.

[4] Centers for Disease Control and Prevention, *Zoonotic Diseases*, <https://www.cdc.gov/onehealth/basics/zoonotic-diseases.html> (last visited November 29, 2022).

[5] World Health Organization (WHO), *Joint WHO/FAO Expert Committee on Zoonoses, Second Report*, Technical Report Series No 169, 1959, <https://apps.who.int/iris/bitstream/handle/10665/40435/WHO_TRS_169.pdf> (last visited November 29, 2022). This definition was updated from the definition put forward in the 1951 Joint WHO/FAO Expert Committee on Zoonoses report, which did not include "and infections" after diseases.

percent) of these diseases originated in wildlife.[6] Further, several of the most impactful diseases throughout human history have been zoonotic diseases, although not all of them may have been recognized as such at the time of their initial spread.

The WHO recognizes over 200 known types of zoonoses, including historic and contemporary diseases such as plague, rabies, salmonella, human immunodeficiency virus (HIV) infection, severe acute respiratory syndrome (SARS), and COVID-19.[7] Many of these diseases have become commonplace and have had localized and global impacts, both caused directly by the illness and through indirect mechanisms such as economic, food, and travel disruptions. Further, many diseases that were zoonotic in origin have become self-sustaining within humans and no longer rely on an animal host for transmission and spread.

Terminology

HB 4128 does not define *zoonotic disease* or *zoonosis*; as such, the definition adopted by the CDC is used in this report unless otherwise specified. Zoonotic disease and zoonosis are used interchangeably in this report. Neither *zoonotic disease* nor *zoonosis* is defined in either statute or regulation in Oregon and none of the consulted agencies had, at the time of writing, adopted official agency definitions for such terms. However, staff from ODA, ODFW, OHA, and OSP—in conversations between LPRO and agency liaisons (see Methodology section for discussion of agency liaisons)—described working interpretations that are used for the purposes of our conversation. The following interpretations were shared with LPRO and reflect agency authorities and activities (see Responding to Zoonotic Diseases in Oregon section).

- ODA staff consider **any disease that can be transmitted, no matter the direction, between an animal and a human** to be a zoonotic disease. Further, ODA considers diseases in animals that have the potential to transfer to humans in their work on zoonotic diseases.
- ODFW considers zoonotic diseases to be those **diseases transmitted between animals and people**. ODFW also discussed "reverse zoonoses" (human to animal transmission) as well as spillover or spillback of diseases.
- OHA primarily considers **diseases transmitted from an animal to a human (one-way transmission) as zoonoses.** OHA staff were the only agency personnel to differentiate diseases transmitted from humans to animals as being outside the general definition of zoonoses utilized by the agency.
- OSP does not have a definition of zoonotic diseases that they use. Rather, activities that intersect with zoonotic diseases rely on ODFW's or ODA's definitions and authorities.

Transmission

Zoonotic diseases may be caused by multiple pathogen types, including bacteria, viruses, parasites, fungi, and prions. Diseases may be transmitted, directly or indirectly, between wildlife, agricultural animals, and domesticated animals and humans.

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[6] Jones, Kate E. et al., Global trends in emerging infectious diseases, *Nature* vol. 451, 7181 (2008): 990-993, <https://www.nature.com/articles/nature06536> (last visited November 29, 2022).
[7] WHO, Zoonoses, <https://www.who.int/news-room/fact-sheets/detail/zoonoses> (last visited November 29, 2022).

Zoonoses may be transmitted directly through animal-human contact, through exposure to animal products or waste, or indirectly through an intermediate vector. Further, there are numerous factors that have been shown or modeled to potentially influence current and future risk and threat associated with zoonotic diseases. Risk factors may include, but are not limited to:

- increased human-animal interactions through habitat change such as urbanization or habitat destruction or fragmentation;
- changing species distributions and emerging diseases due to climate change;
- increased human and animal travel—including agricultural animals and products as well as trafficked animals and animal products; and
- the evolution of antibiotic resistance, which may be driven in part by increased antibiotic use in agricultural settings.[8]

[8] Mishra, J., Mishra, P. & Arora, N.K., Linkages between environmental issues and zoonotic diseases: with reference to COVID-19 pandemic, *Environmental Sustainability* 4, (2021): 455–467, <https://link.springer.com/article/10.1007/s42398-021-00165-x> (last visited November 29, 2022); Camilo Mora et al., Over half of known human pathogenic diseases can be aggravated by climate change*, Nature Climate Change*, 12, (2022): 869–875, <https://www.nature.com/articles/s41558-022-01426-1> (last visited November 29, 2022); Dafale, Nishant A. et al., Zoonosis: An Emerging Link to Antibiotic Resistance Under "One Health Approach," *Indian Journal of Microbiology*, 60(2), (2020): 139-152, <https://link.springer.com/article/10.1007/s12088-020-00860-z> (last visited November 29, 2022).

Statutory Reporting Requirements for Zoonotic Diseases in Oregon

Three state agencies are responsible for responding to zoonotic diseases within Oregon. The Oregon Department of Agriculture (ODA), Oregon Department of Fish and Wildlife (ODFW), and Oregon Health Authority (OHA), have each identified specific zoonotic diseases of concern and have implemented various mechanisms to monitor such diseases throughout the state. In addition, the Oregon State Police have enforcement responsibilities and work with ODA and ODFW.

Oregon Department of Agriculture. As implemented by OAR 603-011-0212, ORS 596.321 (2021)required ODA to enact rules and regulations "containing a list of livestock diseases," as well as the timeframe within which veterinarians are required to report diagnosis of such diseases. Like OHA, ODA's list of diseases that must be reported is divided into those abnormalities and diseases for which observation or diagnosis must be reported immediately and those diseases for which diagnosis must be reported within 15 days. Under the list of observed abnormalities, ODA has included:
"(a) Any unidentified vesicular disease;
(b) Any exotic disease or foreign animal disease, even if only suspected;
(c) Any disease of unknown etiology exhibiting highly pathogenic or lethal effect; or
(d) Any exotic vector (flies and fly larvae, mites, and ticks); or
(e) Any disease, infection, or infestation in domestic or wild animals that is a threat to terrestrial animals, aquatic animals, or humans," meeting identified criteria (OAR 603-011-0212(1)(a)).
ODA's lists of diseases that must be reported immediately or within 15 days are further divided by species group and include diseases afflicting multiple species and species grouped within birds, cattle, goats, sheep, horses, deer, rabbits and hares, dogs, cats, pigs, and other.

Oregon Department of Fish and Wildlife (ODFW). ODFW has a list of diseases affecting wildlife on its website as well as contact information for the department and its Wildlife Health Lab that individuals may use to report sick or dead wildlife (https://www.dfw.state.or.us/wildlife/health_program/index.asp). The listed diseases can potentially affect multiple species of wildlife, including cervids, which include deer and elk, racoons, marine mammals, birds, bats, feral swine, and others. Several listed conditions can affect both wildlife and domesticated animals (livestock or pets) or can be zoonotic diseases.

Oregon Health Authority (OHA). Pursuant to statutory authority, OHA requires veterinarians within the state to report diagnosis of certain diseases, infections, microorganisms, and conditions (ORS 433.004, 2021). OAR 333-018-0017 identifies several diseases and the time frames in which veterinarians must report test results indicative of such diseases. OHA has established three such timeframes: immediately (e.g., anthrax, rabies, plague), within one day (e.g., psittacosis, tularemia), and within one week (e.g., Lyme disease, methicillin-resistant *Staphylococcus aureus*, *Salmonella,* West Nile virus) of diagnosis. In addition to diseases for which reporting is mandatory, OHA has also established a list of *Diseases of Veterinary Importance* (https://www.oregon.gov/oha/ph/diseasesconditions/communicabledisease/veterinarians/pages/reportingformsresults.aspx). Veterinarians are invited, but not required, to report diagnosis of diseases on this list. Such diseases include animal influenza, several feline-specific diseases, heartworm, and scabies, among others. OHA provides a disease reporting form for diseases for which reporting is mandatory or voluntary (https://www.oregon.gov/oha/PH/DISEASESCONDITIONS/COMMUNICABLEDISEASE/VETERINARIANS/Documents/Vet-ZooReporting.pdf).

RESPONDING TO ZOONOTIC DISEASES IN OREGON

As required by HB 4128, LPRO consulted with staff from four state agencies—the Oregon Health Authority (OHA), the Oregon State Police (OSP), the Oregon Department of Agriculture (ODA), and the Oregon Department of Fish and Wildlife (ODFW)—to evaluate agencies' activities related to monitoring, prevention of, and response to zoonotic diseases in the state. To gain insight about these agencies' responsibilities and authorities related to zoonotic diseases, LPRO sent a questionnaire to and arranged follow-up interviews with agency staff (see Methodology section). In addition to the four agencies identified in HB 4128, LPRO requested information from the Oregon Department of Environmental Quality (DEQ) on their responsibilities that may overlap with activities related to zoonotic disease. LPRO also conducted interviews with four stakeholders to gain additional perspective on the state's work in this area.

This section of the report covers the agencies' statutory responsibilities and authorities and provides a summary of the questionnaire and interview responses from each agency on the following topics related to regulating zoonotic diseases or their carriers:

- **activities** and **objectives** the agencies perform to fulfill their duties; and
- **resources**, including personnel and funding.

This section also synthesizes information gathered about the agencies' and stakeholders' perceived **strengths and successes** and **weaknesses and gaps** in the state's zoonotic diseases response framework as well as **coordination and collaboration** activities among the agencies, stakeholders, and other actors outside of Oregon.

State Agencies

The following sections identify the statutory authorities within the Oregon Revised Statutes mandating and authorizing the agencies to undertake required and discretionary activities controlling zoonotic diseases or their carriers. Although certain statutory language directs agencies to address diseases that can be transmitted between animals and humans, LPRO did not identify any statutory language that explicitly directs activities on "zoonotic diseases" or "zoonoses." Rather, statutory language commonly authorizes agencies to undertake activities related to disease or infection more generally.

To aid in identifying statutory and regulatory authorities that agencies relied upon to respond to zoonotic diseases, LPRO requested that agency liaisons, with assistance from other relevant staff, identify relevant statutory authorities. This information was reported to LPRO through the agency questionnaires and follow-up interviews (see "agency consultation" in the Methodology section). To supplement the authorities cited by the agencies, LPRO identified additional, potentially relevant statutory authorities through a review of the statutes relevant to each agency within the Oregon Revised Statutes (ORS) 2021 Edition. The tables included in this section reflect those statutory authorities identified by the agencies as well as through LPRO's review.

LPRO also asked agency liaisons to identify any additional statutory authorities or resources that would facilitate their efforts to respond to zoonotic diseases within the state. However, liaisons stated that they were not able to comment on what, if any, additional authorities would be needed without guidance from the Governor. As such, agency liaisons generally were not able to suggest additional authorities or resources.

Relevant questionnaire and interview responses are grouped by agency in the following sections and are presented in alphabetical order (ODA, ODFW, OHA, and OSP).

Oregon Department of Agriculture (ODA)

ODA's mission is to "ensure healthy natural resources, environment, and economy for Oregonians now and in the future through inspection and certification, regulation, and promotion of agriculture and food."[9] To this end, ODA has authority within the state to regulate diseases and other contagions in livestock and certain other domesticated animals.

The statutory authorities that authorize and mandate ODA to regulate and control diseases or their carriers within livestock and other domesticated animals are primarily included within Chapter 596 of the Oregon Revised Statutes. This authority extends to diseases that are specific to livestock or domesticated animals as well as "those diseases transmitted by or through livestock to humans."[10] Pursuant to this definition, ODA—directly or indirectly—is tasked with regulating zoonotic diseases or their carriers in livestock and other domesticated animals, including by carrying out activities related to zoonotic disease monitoring, prevention, response, or enforcement. Such authorities are implemented by rules included within Division 11 of Chapter 603 of the Oregon Administrative Rules (OAR).[11]

Table 1 provides an overview of selected statutory authorities within ORS Chapter 596 (2021) that empower ODA to regulate diseases in livestock and other domesticated animals.

Table 1. Selected Statutory Authorities Authorizing the Oregon Department of Agriculture to Regulate Zoonotic Diseases in Livestock and Other Domesticated Animals

Authority	Description
ORS 596.010	Defines "disease" to include any disease of livestock transmitted between animals or between animals and humans; Defines "livestock."
ORS 596.020	Authorizes ODA to control livestock disease within the state; Clarifies definition of domesticated fur bearing animals and domesticated fowl as defined in ORS 596.010; Extends ODA authority for disease control over all domesticated animals in the state.

[9] Oregon Department of Agriculture (ODA), "Mission and Vision," <https://www.oregon.gov/oda/AboutUs/Pages/Mission.aspx> (last visited October 25, 2022).
[10] ORS 596.010(2) (2021).
[11] For example, see OAR 603-011-0250 (Livestock Health and Sanitation).

ORS 596.040	Authorizes ODA to collaborate with the U.S. Department of Agriculture (USDA) or other federal agency for livestock disease control.
ORS 596.060	Authorizes ODA to call upon any peace officer for assistance in discharging agency duties. (See Table 4, Oregon State Police Authorities, for additional information.)
ORS 596.210	Creates office of the State Veterinarian to be "chief livestock sanitary official of the state"; Authorizes employment of assistant state veterinarians.
ORS 596.220	Authorizes State Veterinarian to deputize certain qualified veterinarians within the state, as well as specified USDA veterinarians, to assist with carrying out the duties of the State Veterinarian.
ORS 596.260	Authorizes State Veterinarian to deputize certain qualified veterinary technicians within the state to assist with carrying out the duties of the State Veterinarian.
ORS 596.311	Authorizes deputy or assistant state veterinarians to inspect livestock for disease and issue official health certificates prior to shipment at owner's request.
ORS 596.321	Authorizes ODA to enact rules and regulations identifying livestock diseases that must be reported to the department by any veterinary practitioner within the state as well as related to brucellosis vaccination requirements for female cattle; Mandates veterinary practitioners within the state report such diseases to the agency. (See shaded text box, Reporting Zoonotic Disease in Oregon.)
ORS 596.331	Except as provided, prohibits sale, offer of sale, or disposal of any animal known to be infected by any disease listed under ORS 596.321; Except as provided, prohibits sale or offer of sale or disposal of meat, milk, or other parts of any livestock subject to a quarantine order for food or other purposes; Regulates sale, offer of sale, or disposal of cattle based on brucellosis vaccination status.
ORS 596.341	Authorizes ODA to require testing, treatment, or examination of livestock as a condition of entry into the state; Mandates the department to, except as exempted, require a written permit to be issued upon specified conditions for any livestock or other animal subject to disease control law authorizing entry into the state; Authorizes that condition for the permit may include disposal of infected livestock.
ORS 596.351	Prohibits import of livestock known to be exposed to, infected, or a carrier of disease or to bring livestock into the state without requisite permit or meeting conditions of such a permit or required vaccination under ORS 596.341.
ORS 596.355	Prohibits import into the state of any livestock from an area quarantined by the USDA, state, territory, or country in violation of rules by listed entities.
ORS 596.361	Authorizes ODA to summarily quarantine livestock imported into the state in violation of ORS 596.351 or other specified rules as well as testing, treatment, and examination of such livestock; Requires disposal of infected or carrier livestock as required by law.
ORS 596.371	Authorizes ODA to mandate owners treat livestock for disease and establishes requirements for payment for treating livestock if owners are noncompliant.
ORS 596.388	Mandates ODA to investigate all cases of livestock disease within the state when necessary to control or eradicate such disease; Authorizes ODA employees or agents to enter any place or premises for such investigation.
ORS 596.392	Authorizes ODA to require destruction, treatment, disposal, or quarantine of livestock, as well as related products and places, that have been infected, exposed, or are carriers of disease.
ORS 596.393	Allows an authorized representative of ODA to cause burning or burial of carcasses of animals that have died or been destroyed because of an animal disease emergency as defined; Requires ODA to notify state health and environmental agencies of intended action under this section.

ORS 596.394	Authorizes ODA to summarily quarantine any livestock or property contaminated with disease or capable of spreading disease that has been imported into the state from an area under quarantine by the USDA, state, or territory in violation of quarantine rules; Authorizes ODA to impose conditions for release of such livestock or to release livestock to USDA.
ORS 596.396	Authorizes ODA to quarantine livestock for amount of time necessary to meet purposes of quarantine pursuant to previous sections and to recover related costs for cleaning, treatment, and disinfection.
ORS 596.402	Authorizes ODA to quarantine areas within the state and prohibit or restrict movement of livestock, vehicles, persons, or things out of the quarantined area as necessary for eradication or control or to stop the spread of disease in the area with notice as specified.
ORS 596.404	Authorizes ODA to seize and mandate conditions for release of any part or product of slaughtered diseased livestock.
ORS 596.406	Authorizes ODA to prescribe methods to destroy real or personal property and requires ODA to supervise such destruction; Requires payment of indemnity to property owner as provided by law except as provided.
ORS 596.412	Describes factors to be considered by ODA when exercising disease control powers conferred by ORS 596.388 to 596.412.
ORS 596.416	Authorizes ODA to seek court order to compel owners of livestock or property who resist compliance with ODA's performance of duties to cease and desist such resistance.
ORS 596.460	Requires owners or individuals within possession or control of animals affected by any disease to isolate such animals; Prohibits an individual from maintaining or controlling female beef or dairy cattle for breeding purposes unless such animals have been vaccinated against brucellosis.
ORS 596.470	Requires that upon determination that livestock is free of contagious disease by an ODA authorized inspector, such inspector shall provide a certificate to the livestock owner.
ORS 596.615	Defines livestock for the purpose of authorities included within ORS 596.615 through ORS 506.681, which predominately cover indemnity, to include "animals raised for the production of food for human consumption and those animals carrying diseases that threaten animals raised for the production of food for human consumption."
ORS 596.660	Authorizes ODA to allow for means of destruction of condemned livestock or property that can accommodate salvage when conditions are met.
ORS 596.990	Authorizes penalties for violations of certain sections within ORS 596.

Source: *Legislative Policy and Research Office.*
Data: *ORS Chapter 596 (2021).*
Notes: *Statutes related to indemnity for property destroyed pursuant to sections within ORS Chapter 596 are included in ORS 596.615 to ORS 596.681.*

Activities. ODA interprets their authorities related to zoonotic diseases to address infectious and contagious diseases in livestock and domesticated animals that infect or have the potential to infect humans (e.g., Highly Pathogenic Avian Influenza [HPAI]). ODA's activities to manage and respond to such diseases are disease dependent and carried out pursuant to disease-specific response plans. Such response plans may be developed in coordination with other state or federal agencies (e.g., Multi-Agency Response to a Highly Pathogenic Avian Influenza Animal Emergency). To facilitate disease surveillance throughout the state, ODA requires veterinarians within the state to report occurrences or suspected occurrences of specified diseases identified in statute and regulation (see shaded text box, Reporting Zoonotic Disease in Oregon).

ODA is authorized to coordinate with the U.S. Department of Agriculture (USDA) on disease control and eradication and is the only USDA-authorized state agency that can confirm diseases in livestock in Oregon. When they find potential zoonoses, ODA veterinarians also communicate with and are informed by OHA to facilitate vaccinating and monitoring efforts.

Objectives. ODA identified three objectives in regulating zoonotic diseases or their carriers to control introduction and spread where possible and contain detected diseases:

1) exercise general sanitary and disease-control supervision over the livestock of this state and, as much as possible, protect the livestock of this state from disease;
2) take all necessary and proper measures, in its judgment, to control livestock and other domesticated animal diseases within this state, to eradicate, prevent the spread of infectious, contagious, and communicable diseases, and prevent the entry into this state of animals or materials liable to convey infectious, contagious, and communicable diseases to the livestock or people of this state; and
3) prohibit and prevent the sale or use of products dangerous to the health of livestock.

Resources. ODA reported spending approximately $4 million per fiscal year to regulate zoonotic diseases or their carriers. ODA has approximately 10 full-time equivalent (FTE) allocated (including staff and lab positions they share with other entities) for positions related to the agency's zoonotic disease activities, which includes the state veterinarian, three veterinarians, two program coordinators who work generally with diseases that are federally funded by USDA (cooperative agreement funds and grant funds), two office staff for disease traceability data entry and phone call taking, and two lab staff for regulatory disease testing.

Oregon Department of Fish and Wildlife (ODFW)

ODFW's mission is "to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations."[12] Through authority granted to them in statute and as implemented in rule, ODFW regulates the management and response of all diseases occurring in wildlife that may pose a threat to wildlife populations (e.g., chronic wasting disease [CWD], white-nose syndrome in bats, botulism, epizootic hemorrhagic disease, Treponeme associated hoof disease), may affect livestock (e.g., brucellosis, bovine tuberculosis surveillance, highly pathogenic avian influenza in birds), or could cause zoonotic disease in humans (e.g., bat rabies and rabies outbreaks in non-bat species, highly pathogenic avian influenza in birds), and in some cases, ODFW may control human access to wildlife to prevent reverse zoonoses (i.e., the transmission of zoonotic diseases back to an animal), such as SARS-CoV-2. Such statutory authorities are generally contained within Chapters 496,

[12] Oregon Department of Fish and Wildlife (ODFW), "About us," <https://www.dfw.state.or.us/agency/> (last visited October 26, 2022).

497, and 498 of ORS and implemented via administrative rules contained within Divisions 44, 49, and 62 of Chapter 635 of the OAR. Examples of ODFW's Oregon Administrative Rules related to their zoonotic disease work include disease provisions within Sections 65, 67, 71, 73, and 125 of the propagating captive cervid rules, in Chapter 635, Division 49 (Private Holding or Propagating of Cervid Species); Section 590 in Division 44 of the Protected Wildlife, Holding, and Game Bird Propagating rules; and, Sections 30 (3), 35 (1), 40 (6), and 45 (1) (a) of Division 62 in the Wildlife Rehabilitation administrative rules.

The regulations, statutes, and rules authorizing ODFW to prevent spread of and respond to potential zoonotic disease issues are generally not specific to zoonotic diseases but may encompass concepts related to zoonoses. Table 2 provides an overview of selected statutory authorities that may mandate or authorize ODFW to undertake actions related to the management of zoonotic diseases, including monitoring, prevention, response, and enforcement.

Table 2. Selected Statutory Authorities Authorizing the Oregon Department of Fish and Wildlife (ODFW) to Regulate Zoonotic Diseases in Wildlife Populations

Authority	Description
ORS 496.004	Among other things, defines wildlife to include "fish, shellfish, amphibians and reptiles, feral swine as defined by State Department of Agriculture rule, wild birds as defined by commission rule and other wild mammals as defined by commission rule."
ORS 496.012	Establishes a wildlife policy for the State of Oregon, which includes co-equal goals for the utilization and protection of wildlife resources within the state.
ORS 496.080	Establishes the Oregon Department of Fish and Wildlife (ODFW) under the State Fish and Wildlife Commission (Commission).
ORS 496.090	Establishes the State Fish and Wildlife Commission and details how Commission members are to be appointed.
ORS 496.112	Directs the Commission to appoint a director and authorizes authority to delegate powers of the Commission to such director.
ORS 496.116	Outlines the delegation of rulemaking authority to the director.
ORS 496.118	Describes the duties of the director and authorizes delegation of any power, duty, or function assigned to the director to employees within the department.
ORS 496.138	Requires the Commission to implement policies and programs for the management of wildlife in the state and to work on and with public and private lands and landowners to "protect and enhance wildlife habitat and effectively manage wildlife"; Directs the Commission to promulgate rules to implement the policy and objectives in ORS 496.012.
ORS 496.146	Authorizes the Commission to manage state wildlife and establish rules and requirements for hunting and angling and the prescription of fees and penalties, among other things.
ORS 496.162	Requires the Commission to establish by rule hunting and angling seasons, amounts and manner of taking wildlife, which takes into account, among other things, the condition of wildlife populations in the state.
ORS 496.164	Authorizes the Commission and ODFW to "advise, consult and cooperate with other agencies of this state and political subdivisions, other states or the federal government and private landowners with respect to fish and wildlife management."
ORS 496.252	Establishes the Oregon Conservation and Recreation Fund and continually appropriates the fund to ODFW;

	Allows expenditure on, among other things, "promoting the health of Oregon's ecosystems and fish and wildlife species."
ORS 496.605	Authorizes the director, any deputies of the director, or any peace officer within the state to enforce wildlife laws. (See Table 4, Oregon State Police Authorities, for additional information.)
ORS 496.610	Directs the Department of State Police to employ sufficient officers to enforce wildlife laws and dictates funding to be paid from the State Wildlife Fund; Empowers State Police Superintendent to appoint special agents of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service as "special enforcement officers" to enforce state wildlife laws.
ORS 496.615	Authorizes the Commission to employ persons as deemed necessary or expedient to enforce wildlife laws provided there is approval from the Governor, and the Superintendent of State Police for such employment; States the intention that wildlife law enforcement be carried out by State Police to the extent economical and practicable.
ORS 496.730	Establishes that it is the intent of the Oregon Legislative Assembly to protect wildlife from becoming habituated to humans to protect the public from health and safety risks of close contact with wildlife.
ORS 496.731	Authorizes officers, as defined, to issue written notification to remove attractants of potentially habituated wildlife; Mandates any person who receives written notification to adhere to requirements within the notification.
ORS 496.992	Establishes penalties for violation of any provision of wildlife laws or rules promulgated to implement such laws.
ORS 497.228	Requires individuals engaged in the business of propagating game birds or game mammals to obtain a license to do so from ODFW; Allows the Commission to prescribe requirements for "the care, inspection, transportation and the sale, taking or other disposition of the game birds or game mammals and for such record keeping and reporting procedures as will insure [sic] that the propagation activities are conducted in such manner as will not be harmful to existing wildlife populations."
ORS 498.002	Establishes wildlife as state property; Prohibits taking, angling, hunting, or trapping in violation of wildlife law or rules.
ORS 498.018	Bans sale and purchase of commercial cervid attractants to reduce threat of chronic wasting disease.
ORS 498.019	Authorizes Commission to promulgate a rule to require records for purchase, sale, or exchange of hides, antlers, and other parts of deer, elk, and antelope if such activity is allowed pursuant to Commission authorities.
ORS 498.052	Prohibits the release of domestically raised or imported wildlife without a permit.

Source: *Legislative Policy and Research Office.*
Data: *ORS Chapters 496, 497, and 498 (2021).*

Activities. The Oregon Fish and Wildlife Commission (Commission) has the statutory authority to prohibit the holding of any live wildlife unless specifically allowed under rule. Additionally, the statutes allow ODFW, through Commission-adopted rules, to regulate the importation, holding, and transportation of native and non-native wildlife. The process to develop these rules involved working with stakeholders and wildlife species experts to develop and finalize the lists of prohibited and controlled species.

According to ODFW, the intent of these lists, and associated rules, is to protect Oregon's native wildlife from harmful diseases, genetic mixing, and invasive competitors. The lists have been adaptively amended to address new threats to Oregon's wildlife and potential human health risks. ODFW interprets their mandate to

include protecting wildlife resources in the state (birds, mammals, reptiles, amphibians, fish, and shellfish) including by undertaking efforts to prevent, respond to, and manage diseases in wildlife populations.

The agency plans, communicates, and coordinates prevention, management, and control activities, and conducts surveillance to mitigate or eradicate threats, such as diseases carried by endemic and invasive and exotic species. Veterinary and lab staff—ODFW operates the Wildlife Health Program and Laboratory (WHPL)—coordinate agency response to disease issues and outbreaks for all species and address wildlife health issues for the department, with interagency cooperators, regionally and nationally, as appropriate. ODFW employs best management practices—e.g., using masks and gloves—to protect against spillover and spillback to wildlife. They track diseases, like CWD and HPAI, in real-time, where the longer a pathogen such as a virus sits in a host, the greater chance it has to mutate and become more virulent and infectious.

ODFW also considers public health impacts of wildlife diseases because of the potential for diseases to transmit to humans. The WHPL provides agency expertise on wildlife diseases and wildlife veterinary services for all wildlife in Oregon. WHPL's mission is to serve as support for all agency field staff, programs, and administrators through:

1) preventing emerging wildlife diseases, including zoonotic disease, by providing disease surveillance, monitoring, disease eradication, or control to protect Oregon's wildlife resource from emerging disease threats;
2) incorporating animal welfare standards into research and management programs through intra-agency consults, animal care and use committee service, and veterinary support on research and management projects as requested; and
3) providing education, communication, support, and training (animal handling, disease protocols, animal capture, immobilization, etc.) to agency staff, laboratory staff and cooperators, and other institutions and agencies.

Objectives. ODFW's objectives in regulating zoonotic diseases or their carriers include:

1) Providing stewardship of fish and wildlife resources in the state for current and future generations, as identified in ODFW's Mission statement. ODFW leadership also completed a strategic plan in 2018 that identified monitoring and managing invasive species and disease as one of five focal issues. In the initial implementation report for the strategic plan actions in 2021, the focal issue group highlighted a priority list of fish and terrestrial wildlife diseases and a prioritized list of invasive species threats to Oregon's endemic wildlife.[13]
2) Working directly with other agencies in Oregon (e.g., ODA, OHA, OSP), natural resource agencies in other states, Oregon Veterinary Diagnostic Laboratory (OVDL), federal entities, and any other affected entities and stakeholders to develop response plans (e.g., the Surveillance, Management and Communications Plan for a Rabies Outbreak in Oregon 2011 and the Multi-

[13] Oregon Department of Fish and Wildlife, "Strategic Plan 2018-2024 Progress Report 2018-2020," provided to LPRO by ODFW.

Agency Response to a Highly Pathogenic Avian Influenza Animal Emergency 2014) and mitigate impacts.[14]

Resources. ODFW representatives said it was difficult to quantify how much the agency spends annually to regulate zoonotic diseases or their carriers but estimated the amount to be less than $500,000. They provide approximately $20,000 per year through in-kind grant funding to OVDL and have a line item in their budget for such expenses. Through a recent USDA Animal and Plant Health Inspection Service (APHIS) Veterinary Services 2022 Wild Cervid CWD funding opportunity, ODFW provided OVDL $50,000 for the development of diagnostic testing and equipment for wildlife disease surveillance. ODFW also was awarded a two-year, $746,757 American Rescue Plan Act grant funding for a joint project with University of California, Los Angeles, for a zoonosis-related project titled "Building an Eastern Pacific Marine One Health Coalition to Strengthen Capacity for Health Monitoring, Zoonotic Disease Surveillance, Response and Management in Marine Ecosystems."[15]

ODFW has four permanent staff members that work on zoonotic disease−related activities, including two veterinarians and two laboratory biologists that work with agency administrative staff. They also rely on the work of interns and externs. Among these staff members, there is no more than 0.25 FTE allocated across the positions to do work related to zoonotic disease regulation, in part because the agency has other focal areas as well. ODFW biological field staff throughout the state (including fish and wildlife districts, wildlife areas, and research programs) also provided an integral component for monitoring, reporting, and outreach. The ODFW wildlife health lab receives daily contact from various field staff on disease topics.

Oregon Health Authority (OHA)

OHA's mission is to ensure "all people and communities can achieve optimum physical, mental, and social well-being through partnerships, prevention, and access to quality, affordable health care."[16] OHA's authority related to zoonotic diseases is primarily focused on the diseases after transmission to humans has occurred, but OHA also carries out activities to prevent and control zoonotic diseases, directly or indirectly, through various monitoring, prevention, response, or enforcement activities. Mandates directing and authorities allowing OHA to regulate zoonotic diseases can be found in the Oregon Revised Statutes listed in Table 3. ORS 433.004 (2021) gives the agency responsibility to specify reportable diseases (including zoonotic diseases) and to

[14] Oregon Department of Fish and Wildlife, Oregon State Public Health Division, Oregon State University Veterinary Diagnostic Laboratory, Oregon Department of Agriculture, and U.S. Department of Agriculture, Wildlife Services, "Surveillance, Management and Communications Plan for a Rabies Outbreak in Southwestern Oregon," (2011), provided to LPRO by ODA; Oregon Department of Agriculture, Oregon Department of Fish and Wildlife, Oregon State University Veterinary Diagnostic Laboratory, Oregon Health Authority, U.S. Department of Agriculture, Wildlife Service and Veterinary Services, and U.S. Fish and Wildlife Service, "Multi-Agency Response to a Highly Pathogenic Avian Influenza Animal Emergency," (2014), provided to LPRO by ODA.

[15] U.S. Fish and Wildlife Service, American Rescue Plan Act Zoonotic Disease Grant Program, *Building an Eastern Pacific Marine One Health Coalition to Strengthen Capacity for Health Monitoring, Zoonotic Disease Surveillance, Response and Management in Marine Ecosystems, $746,757*, <https://www.fws.gov/project/american-rescue-plan-act-zoonotic-disease-grant-program> (last visited October 25, 2022).

[16] Oregon Health Authority, "About OHA," <https://www.oregon.gov/oha/Pages/Portal-About-OHA.aspx> (last visited October 25, 2022).

prescribe measures and methods by which OHA and Oregon's local public health authorities investigate their sources and control them. OAR 333-019-0002 requires health care providers, health care facilities, and licensed laboratories to cooperate with OHA and with local public health officials in the investigation and control of reportable diseases and conditions. ORS 431A.010 (2021) authorizes OHA to impose civil penalties as established by rule for violations of public health law; penalties specifically related to violations of reportable disease rules are specified in OAR 333-026-0030.

Table 3. Statutory Authorities Authorizing the Oregon Health Authority to Regulate Zoonotic Diseases in Humans

Authority	Description
ORS 431.110	Declares, among other things, that OHA shall have "direct supervision of all matters relating to the preservation of life and health of the people of this state" and shall "have full power in the control of all communicable diseases."
ORS 431.120	Directs OHA to "enforce all laws, rules and policies of this state related to health."
ORS 431.141	Directs OHA to establish, among other things, foundational programs for communicable disease control and environmental public health.
ORS 431.142	Mandates that the foundational "communicable disease programs established under ORS 431.141 must identify, prevent and control infectious diseases that pose a threat to the health of the public."
ORS 431.143	Mandates that the foundational "environmental public health programs established under ORS 431.141 must protect the public from illness, injury, disability and death caused by exposure to physical, chemical or biological factors in the environment."
ORS 431.149	Authorizes OHA to promulgate rules to implement authorities provided in ORS 431.001 to 431.550 and 431.990.
ORS 431.150	Directs OHA to enforce public health laws of this state.
ORS 431.175	Authorizes the Director of OHA or designee to request a warrant directing a "sheriff or deputy or any constable or police officer, to enter the described property or to remove any person or obstacle, or to defend any threatened violence to the director or a designee thereof…upon entering private property, or to assist the director in any way."
ORS 431.990	Authorizes penalties for failure to obey specified laws included within ORS Chapter 431, associated rules, or a lawful written order issued by the Director of OHA or local public health administrator.
ORS 431A.005	Defines for emergency plans and incident management systems, among other things, communicable disease to mean "a disease or condition, the infectious agent of which may be transmitted by any means from one person or from an animal to another person, that may result in illness, death or severe disability."
ORS 431A.010	Authorizes OHA and Oregon local public health administrators to investigate possible violations of public health laws and to impose civil penalties for violations.
ORS 431A.015	Authorizes the Public Health Director to, with approval of the Governor, take described public health actions in the event of certain communicable diseases or other events.
ORS 433.001	Extends the definition of communicable disease from ORS 431A.005 to ORS Chapter 433, which grants OHA broad authority to investigate and control disease within the state.
ORS 433.004	Authorizes OHA to specify reportable diseases and to prescribe measures and methods for controlling them; Authorizes OHA or local public health administrator to investigate cases of disease; Authorizes agency to exercise disciplinary authority for failure to report as required by rule pursuant to this section.

ORS 433.340 – ORS 433.390	Authorizes the OHA, in coordination with ODA, to establish regulations to address exposure to and risk of rabies, including as it pertains to animals as defined by ORS 433.340.
ORS 433.449	Defines "transmissible agent" to mean "biological substance capable of causing disease or infection through individual-to-individual transmission, animal to individual transmission, or other modes of transmission"; Authorizes the Public Health Director to, during a public health emergency, prescribe disposal measures for human remains, including those of an individual who has died of a communicable disease or transmissible agent.
ORS 452.300	Directs the OHA to maintain a public health vector control program; Authorizes OHA to provide not more than $5,000 per year to a district, as defined in ORS 452.010, for a program to carry out disease surveillance.

Source: *Legislative Policy and Research Office.*
Data: *ORS Chapters 431, 431A, 433, and 452 (2021).*

Activities. OHA interprets the statutory authority provided to the agency to include addressing diseases and other contagions, including those originating in animals, as they affect humans, and agency staff reported that OHA generally does not regulate zoonotic disease carriers. It is OHA's responsibility to monitor, advise, and report on diseases that have the potential to cross from animals into humans. The agency communicates about potential risks in animals transmitting zoonoses to humans and advises Oregonians how to prevent such transmission (e.g., wearing a mask and gloves or getting a regular flu vaccine). Through human case interviews, OHA identifies risk factors potentially involved in the transmission of zoonotic disease, including, but not limited to, animal exposure. OHA also has rules pertaining to the vaccination of rabies in dogs, cats, and ferrets for the protection of animal and human health. OHA supports rabies testing and provides recommendations for risk assessment and the need for rabies vaccine when people are bitten by mammals. OHA publishes data about human and animal cases of rabies. The agency supports surveillance efforts, such as mosquito and other animal testing, related to West Nile virus and reports to CDC. OHA monitors places for occupational exposure where such potential spillover occurs, such as at a wildlife park (ODA monitors the same spaces for disease in animals).

Objectives. OHA's Public Health Division promotes disease prevention, health services, and health-promotion programs that protect communities from communicable diseases, epidemics, and contaminated food and water. There are two related goals to achieving these objectives:

1) Promote and protect safe, healthy**,** and resilient environments to improve quality of life and prevent disease**.**
2) Strengthen public health capacity to improve health outcomes**.**

Resources. Despite the large volume of work OHA undertakes related to zoonotic diseases, the agency uses a One Health (see One Health and Zoonotic Disease shaded textbox) approach and does not have a line item in their budget for a state public health veterinarian. The agency receives funding from federal agencies, such as the CDC, to support surveillance of vector-borne diseases, such as those spread by mosquitos and ticks (e.g., West Nile virus and Lyme disease). Some of the funding they receive supports testing for various public health pathogens at OVDL and for test development including for new and emerging pathogens. OHA also provides vector-

control districts with federal funds for educational purposes. OHA has one FTE allocation for investigations associated with zoonotic disease activities.

Oregon State Police (OSP)

OSP is "charged with protecting the people, wildlife, and natural resources in Oregon."[17] The OSP Fish and Wildlife Division's (OSPFWD) role in regulating zoonotic diseases is primarily through enforcement; specifically, OSP enforces the statutes and rules adopted by ODA and ODFW where there is an associated criminal or violation-level penalty. Therefore, OSP is reliant on statutory authorities related to ODA and ODFW as they relate to zoonotic diseases. In general, OSP's police authorities can be found in ORS Chapter 181A (2021) (State Police; Crime Reporting and Records; Public Safety Standards and Training; Private Security).

OSP's statutory authorities to enforce laws related to zoonotic diseases or their carriers are listed in Table 4.

Table 4. Selected Statutory Authorities Authorizing the Oregon State Police to Enforce Laws Related to Zoonotic Diseases

Authority	Description
ORS 496.605	Authorizes the director, any deputies of the director, or any peace officer within the state to enforce wildlife laws. (See Table 2, Oregon Department of Fish and Wildlife Authorities, for additional information.)
ORS 496.610	Directs the Department of State Police to employ sufficient officers to enforce wildlife laws and dictates funding to be paid from the State Wildlife Fund; Empowers State Police Superintendent to appoint special agents of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service as "special enforcement officers" to enforce state wildlife laws.
ORS 496.615	Authorizes the State Fish and Wildlife Commission to employ persons as deemed necessary or expedient to enforce wildlife laws provided there is approval from the Governor, and the Superintendent of State Police for such employment; States the intention that wildlife law enforcement be carried out by State Police to the extent economical and practicable.
ORS 498.002	Establishes wildlife as state property; Prohibits taking, angling, hunting, or trapping in violation of wildlife law or rules.
ORS 506.147	Authorizes the State Fish and Wildlife Commission, with certain exceptions, to adopt record keeping requirements regarding food fish commerce.
ORS 506.506	Establishes the intent of ORS 506.511 and 506.516 "to permit the State Fish and Wildlife Commission to employ only such deputy fish wardens as are agreed necessary or expedient among the commission, the Governor and the Superintendent of State Police, and that the duties of enforcing criminal provisions of the commercial fishing laws, so far as is economical and practicable, be performed by the Department of State Police."
ORS 506.511	Requires the Department of State Police to employ sufficient state police to enforce commercial fishing laws; Authorizes the Superintendent to appoint federal agents as special enforcement officers.
ORS 506.550	Authorizes peace officers to search and examine specified places to enforce commercial fishing laws.

[17] Oregon State Police, "Oregon State Police Agency Information," <https://www.oregon.gov/osp/about/Pages/aboutusosp.aspx> (last visited October 25, 2022).

ORS 506.620	Authorizes the State Fish and Wildlife Director or authorized agent to inspect specified places related to commercial fishing laws.
ORS 596.060	Obligates peace officers within the state to assist ODA or ODA employees upon request with discharging ODA duties (See Table 1, Oregon Department of Agriculture Authorities, for additional information.)

Source: *Legislative Policy and Research Office.*
Data: *ORS Chapters 496, 498, 506, and 596 (2021).*

Activities. OSP interprets their authority to include enforcing laws throughout Oregon, including, in certain circumstances, laws relating to disease control and transmission that are enforced through agreements with ODA and ODFW. Examples of activities directly or indirectly related to regulating zoonotic diseases or their carriers that OSP undertakes include: conducting inspections, investigating complaints or tips, law enforcement, and providing training and educational opportunities.

OSPFWD conducts inspections (e.g., "market retail inspection blitzes") at businesses that may be trafficking in prohibited or controlled species, including fish dealers, markets, restaurants, and pet stores, and staffs the Umatilla and Ashland boat check stations for invasive species. The department also investigates any complaints or tips it receives related to the possession of prohibited and controlled species. OSP collects information and does enforcement for ODFW and ODA. In terms of training and education, OSP offers training for ODFW field biologists and assists with educating businesses and individuals who might be unaware of species prohibitions.

Objectives. OSPFWD's objectives related to species regulated for zoonotic diseases or their carriers are to detect, investigate, and deter those who might unlawfully possess prohibited species.

Resources. OSP has no agency funding dedicated to regulating zoonotic diseases or their carriers. Similar to other duties, when there is specific guidance to undertake an action, and if funding and positions are provided, they do what is necessary to complete the task (e.g., creating an under-cover guide outfitter position). DEQ provides OSP resources for criminal investigations related to water, air, and waste violations. DEQ also funds one FTE allocation for the criminal investigations they request from OSP. The Oregon State Marine Board (OSMB) provides seven FTE allocations to OSP, which are spread across the state among all troopers in the division who work on the water. Federal organizations have trained OSP officers and provide funding for state trooper positions (three FTE allocations) and for training activities related to federal law (e.g., Endangered Species Act [ESA]).

Non-Agency Stakeholders

As part of information discovery for this report, LPRO interviewed selected stakeholders from across Oregon with varying perspectives on zoonotic diseases and how they are managed within the state (see "stakeholder interviews" in the Methodology section). LPRO staff also participated in a tour of OVDL to better understand their role in responding to zoonotic diseases in Oregon. As part of these interviews, stakeholders were asked, among other topics, to comment on management of zoonotic diseases within the state in general, what they viewed as currently working well, and what

opportunities for improvement might be available. Stakeholders were also asked to consider whether activities undertaken to respond to zoonotic diseases had the potential to result in unintended outcomes or consequences. In particular, LPRO asked for stakeholders' perceptions as they applied to efforts undertaken by state agencies to address zoonotic diseases.

Oregon Veterinary Diagnostic Laboratory (OVDL)
The Oregon Veterinary Diagnostic Laboratory (OVDL) at Oregon State University provides animal disease diagnostic services and surveillance for zoonotic and foreign animal diseases. OVDL is Oregon's only American Association of Veterinary Laboratory Diagnosticians–accredited diagnostic lab. As a member of the USDA-affiliated National Animal Health Laboratory Network, OVDL monitors foreign disease outbreaks. Beyond its work related to testing for diseases in animals, the lab also performs testing for COVID-19 in humans.

OVDL is central to the activities of the state's zoonotic disease response framework. It provides services for state executive branch agencies (e.g., OHA, ODA, and ODFW); local, nonstate governments (e.g., county health departments and vector-control agencies across the state); agencies or entities in other states (e.g., other similar labs outside of the state and vector-control agencies in Washington); federal agencies including USDA, USFWS, the National Animal Health Lab network (administered by USDA), CDC, and NOAA's Marine Mammal Stranding Network.

Collaboration and Coordination

Both state agencies and non-agency stakeholders identified collaboration and coordination as integral to responding to zoonotic diseases. As described below, collaboration and coordination were described between state agencies (i.e., inter-agency) as well as between state agencies and other entities.

Inter-Agency Collaboration and Coordination
Agency and stakeholder responses show that collaboration and coordination are important for achieving zoonotic disease objectives. The agency representatives LPRO interviewed—ODA, ODFW, OHA, and OSP—indicated that they collaborate with the following entities:

- ODA, ODFW, OHA, and OSP collaborate with **other executive branch agencies**;
- ODA and ODFW collaborate with **academic institutions**;
- ODA, ODFW, and OHA collaborate with **veterinary institutions**, including OVDL;
- ODA, ODFW, OHA, and OSP collaborate with **agencies in other states**;
- ODA, ODFW, OHA, and OSP collaborate with **federal agencies**;
- ODA, ODFW, OHA collaborate with **other entities**, such as relevant stakeholders, the Association of Fish and Wildlife Agencies (AFWA), and U.S. Animal Health Association

ODFW and ODA identify issues in the field and send information about prohibited species to OSP, and OSP responds. If people are caught transporting live animals or animal parts, ODFW contacts OSP to respond. Similarly, ODA and OSP have a contract for shellfish inspection to intercept illegal harvesting and a game meat inspection program. ODA also requests OSP to inspect places they cannot access or where potential health or safety risks exist.

ODA, ODFW, and OHA collaborate when a human outbreak of zoonotic diseases occurs. They also collaboratively write plans for every disease that appears in the state, such as the multi-state agency 2004 Highly Pathogenic Avian Influenza (HPAI) plan. Every pathogen, zoonotic or not, that crosses the state border into Oregon gets its own plan. Response planning includes OHA, ODA, ODFW, and DEQ (if toxin-related).

ODFW and OSP have had a long history of consulting each other on wildlife inspections, planning, and preparing to put regulations in place and on enforcement activities. ODFW can coordinate enforcement actions, such as seizing illegal animals to prevent disease spread, with any peace officer in the state. The ODFW Director can deputize officers,[18] but with the liability involved in enforcing laws, writing tickets, and carrying a weapon, they contract with OSP instead of ODFW undertaking the tasks.

OSP interacts and contracts with other agencies as well, including DEQ, the Oregon State Marine Board (OSMB), and Oregon Parks and Recreation Department (OPRD). There is also a mutually beneficial relationship between OSP and the public: OSP educates the public on how to deal with animals and the public (including hunters) acts as eyes and ears on the ground to find and report potential threats (the public can report to their local law enforcement or call *OSP, or *677, and 1-800-452-7888).

Agency Collaboration and Coordination with Non-Oregon Actors

OSP Fish and Wildlife Division (OSPFWD) and ODFW work closely and coordinate with federal agencies such as National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (FWS). Such collaboration is meant to monitor for and predict outbreaks nationally, as well as set up a coordinated response. OSP also coordinates activities with their fish and wildlife department counterparts in other states (e.g., California Department of Fish and Wildlife [CDFW], Washington Department of Fish and Wildlife [WDFW], and Idaho Fish and Game [IDFG]) when investigating the unlawful trafficking of prohibited species. ODFW also connects with the relevant wildlife agencies in other states. ODFW acts as a collaborative liaison between ODFW and interagency cooperators at the federal and state level, stakeholders, and the public of Oregon concerning wildlife health issues.

Statutory authority allows for cooperative agreements between ODA and the U.S. Department of Agriculture or other federal agencies for livestock disease control and eradication.[19] ODA also is given direct authority to make requests for peace officers to

[18] ORS 496.605 (2021).
[19] ORS 596.040 (2021).

assist the department.[20] ODFW has mandatory and discretionary authority to coordinate and collaborate with other agencies but by statute has management authority over most species of wildlife.[21] The agency also has joint management authority over some species, such as migratory birds and those that are federally managed. Under agency rule, OHA and local public health administrators are authorized to coordinate with health care providers, health care facilities, and licensed laboratories.[22] By statute, any branch or department of the state government can request OSP's assistance to enforce any of the criminal laws or regulations of the branches or departments.[23] OSP has working agreements in place with other state agencies, such as ODFW and ODA.

Agency-identified benefits from collaborating with others include:

- coordination;
- enhanced disease prevention;
- strong communication; and
- an ability to fill in gaps in funding and capacity.

Interagency coordination—and strong communication—ensures coverage of the multiple points of origin of diseases and their transmission. Through collaboration, agencies can pool resources and information to fill gaps in their capacity, coordinate law enforcement efforts to eliminate sources of infection, and prevent disease emergence in humans. This is especially important in places where species migrate between jurisdictions.

[20] ORS 596.060 (2021).
[21] ORS Chapter 496 (2021).
[22] OAR 333-019-0002.
[23] ORS 181A.090 (2021).

One Health and Zoonotic Disease

The Centers for Disease Control and Prevention (CDC) describes One Health as "a collaborative, multisectoral, and transdisciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment" (https://www.cdc.gov/onehealth). Although One Health is not directly referenced in HB 4128, components of the One Health concept were alluded to in the bill's introductory whereas clause, which stated, "greater coordination between public health agencies, wildlife management agencies, research institutions and other entities can improve emergency preparedness, prevention and response" (https://olis.oregonlegislature.gov/liz/2022R1/Downloads/MeasureDocument/HB4128/Enrolled). The One Health concept also was referred to numerous times in testimony presented on HB 4128 (for example, see testimony and report uploaded by Quinn Read: https://olis.oregonlegislature.gov/liz/2022R1/Measures/Testimony/HB4128, with emphasis placed on the potential benefits of increased communication and collaboration between entities responsible for the health of humans, animals, and the environment).

Although there have been no formal proposals in Oregon to develop a One Health program, legislators in several other states, as well as in the U.S. Congress, have introduced legislation referencing One Health. For example, New Jersey Senate Bill 347 (S347; https://www.njleg.state.nj.us/bill-search/2020/S347), enacted June 2021 (P.L. 2021, Chapter 117), established the New Jersey One Health Task Force, which was tasked with developing a "strategic plan to promote inter-disciplinary communication and collaboration between physicians, veterinarians, and other scientific professionals and State agencies, with the goal of promoting the health and well-being of the State's residents, animals, and environment." Although initially drafted for the task force to be chaired by the Department of Health, the bill was later amended pursuant to a conditional veto from the Governor to designate the Department of Agriculture to chair the task force. Membership of the task force is 13 people, 3 from state agencies—Agriculture, Environmental Protection, and Health—and 10 members from the public with relevant experience representing the medical, veterinarian, research, and academic communities. Further, the law requires reports to be submitted to the Governor within 12 months of the organization of the task force and at least biennially thereafter.

STRENGTHS AND WEAKNESSES IN THE STATE'S ZOONOTIC DISEASE RESPONSE

LPRO requested agency liaisons and non-agency stakeholders to identify any perceived strengths and successes as well as weaknesses and gaps in current efforts to respond to zoonotic diseases in Oregon. Non-agency stakeholders were asked if they perceived any potential for unintended consequences associated with efforts by state agencies to monitor, prevent, or respond to zoonotic diseases or their carriers. The following sections summarize responses to these questions from agencies and non-agency stakeholders.

Agency-Perceived Strengths and Successes

Agency responses about the strengths and successes in the state's responses to zoonotic diseases included:

- coordination with others;

- ability to fill in gaps in funding and capacity;
- informal processes and flexibility;
- tangible products;
- enhanced disease prevention;
- incidences of good communication; and
- strong partnerships and personal relationships.

Through partnerships, agencies coordinate and leverage resources and rely on entities that are accredited by the federal government (e.g., OVDL) rather than have in-house diagnostic laboratory space or certified technicians. Relying on OVDL and other national disease labs permits the agencies to have emergency and late-night testing capacity that they otherwise would not have on their own. Similarly, other agencies use OSP, with its specialized training and equipment, to conduct investigations and law enforcement efforts on their behalf. OSP said that they are effective in their work when they are provided with the necessary information to respond to a request from others.

Agencies coordinate activities with other state and federal agencies as needed. The informal relationships work well, they said, as it allows them to be flexible and reduces the need for bureaucratic processes (e.g., filing paperwork); however, informality can also be seen by some as a limitation to being prepared for unexpected outbreaks of disease. ODA and OHA have a memorandum of understanding (MOU) to collaborate, and ODA also has a "handshake agreement" that allows them to work with OVDL. The agency representatives interviewed said they are able to pass federal funding on to OVDL for testing that can only be done at an accredited lab (see section on Oregon Veterinary Diagnostic Laboratory [OVDL]), allowing the agencies to focus on their day-to-day operations. Flexibility within agencies is also seen as an advantage in situations where resources are limited: ODFW said their field staff can be an extension of the veterinarian staff in some cases when the latter needs help.

Other successful outcomes of the work agencies do on zoonotic diseases include accomplishments on the ground and products they have produced, such as their response plans. They view their ability to work within their statutory authorities as a success as well and said they do not need additional authorities to accomplish their work. The open communication between agencies and strong interpersonal relationships among some agency staff members were also cited as important aspects of their collaboration. Agency representatives said a smooth exchange of information and trust among personnel provide more opportunities to solve problems and react quickly in an emergency.

Agency-Perceived Weaknesses and Gaps in the State's Zoonotic Disease Response Framework

Agencies responded that the following weaknesses and gaps, including limitations and barriers to agency's work, currently exist in Oregon's zoonotic disease response framework:

- a lack of capacity, training, and resources;
- bureaucratic processes and differences in authority; and

- incidences of poor communication.

ODA, ODFW, and OHA have laboratory space and diagnostic testing equipment of their own used for limited testing, but mostly rely on OSU's VDL staff and other national labs for their testing needs. Furthermore, there are a limited number of in-house agency staff with relevant expertise and certifications, which has led to a lack of capacity to monitor and respond to zoonotic disease threats.

Although the State Veterinarian is housed at ODA, the agency has a limited number of staff to respond to disease reports and concerns. Similarly, OSP has limited resources to support enforcement actions. Some agencies have the ability to do the work of OSP, but because they do not have enough personnel to step into those roles, they have limited citing- and warrant-enforcement capabilities. Even when agencies can rely on OSP, they often have to train the officers.

Not having enough staff members who are trained properly was another weakness mentioned by agency representatives. The training offered by the federal government is not offered very often (e.g., USDA last offered a training four years ago); the COVID-19 pandemic exacerbated the delays further because federal staff members were not permitted to travel and conduct trainings.

Resource limitations can become more severe or constrained as the needs of disease response grow (e.g., there are more limitations when OHA has to determine a disease's origin). ODA said their concerns grow when more than one major event occurs at the same time (e.g., if a disease outbreak happens at the same time a wildfire threatens animals). While having flexibility to use field staff to step in to assist experts is appreciated, agencies do not have enough staff to complete their regular duties.

Agencies mentioned that the state budget-writing process is often disconnected from the reality of not knowing which diseases will appear when or how severe they will be. The four agency representatives LPRO interviewed said that their agency budgets do not provide funding for regulating zoonotic diseases. One agency also mentioned that FTE allocations are taken when budgets are constrained but said there is not a process to get emergency FTE allocations when additional capacity is needed. Securing continued funding for responding to a disease that may or may not still be present in the state is a challenge. Depending on the size and scope of the zoonotic or other disease threat, an agency may not have the staff and funding capacity to carry out a complete and rapid disease eradication to every incursion. One agency representative said that this is true for every agency and every incident of emerging diseases.

Agencies rely on OVDL and its diagnostic testing facilities. Since OVDL operates a fee-based lab, state agencies must pay to use this service. Most agencies viewed OVDL's work as indispensable and pay the fees with state funding but more often use federal grant money (often from the CDC, USFWS, and USDA APHIS), but did not discuss whether they perceived that funding as stable for the foreseeable future. One agency mentioned that federal funds are only designated for a handful of diseases.

Division of duties across jurisdictions (state vs. federal) has led to limitations in agencies' ability to coordinate monitoring and response efforts. The agencies' reliance on informal agreements can lead to delayed or uncoordinated responses; however, one agency representative said that informal MOU processes work most of the time. The capacity limitations of Customs and Border Patrol to address import issues involving wildlife and limited funding for USDA port inspections is an example. Unclear jurisdictions can also hamper agency actions and generate misinformation. For example, disposal of birds infected with HPAI has been slowed due to DEQ not regularly engaging in this activity and slowdown of disposal increases risk of additional exposure.

Agency representatives told LPRO that delayed agency action is also a result of bureaucratic processes. Some of ODA's work requires coordinating with a peace officer. The State Veterinarian is the only person who can coordinate a response effort with other agencies, which can delay the process. The reality of dividing duties among agencies has led to some agencies not having all the equipment or authorities needed to respond. For example, OSP has the equipment—guns and shields—that ODA does not, so the two agencies must coordinate if there is a need for OSP law enforcement during a field call by ODA.

Communication efforts between agencies were perceived to be strong, but agencies cited communication between agencies and the public as weak. Information provision to and education of the public related to any disease threat or outbreak is perceived to be essential in controlling exposure and spread of zoonoses, particularly in diseases that may be in wildlife reservoirs. The only potential limitation to communicating with and sharing information across agencies is that health information during case investigation is protected. OHA suggested that many agencies are not compliant with the Health Insurance Portability and Accountability Act (HIPAA), which limits what they can share.

Non-Agency Stakeholder-Perceived Strengths and Successes in the State's Zoonotic Disease Response Framework

Stakeholders noted several components of the zoonotic disease response framework are working well within the state. Many of the successes in Oregon's framework centered on existing authorities and implementation of such authorities, as well as collaboration and communication between state agencies, and between agencies, partners, interested stakeholders, or the public. The stakeholder-perceived successes included:

- strong authorizing legislation;
- appropriate agency responses and use of resources;
- agencies' strong communication and collaboration practices; and
- strong relationship between state agencies and partners.

Some stakeholders noted that agencies typically have been quick to respond when a zoonotic disease outbreak occurs. Specifically, stakeholders cited that relevant agencies implement response plans, provide information, and do a good job diagnosing

diseases, especially legacy diseases like rabies. The perception of stakeholders is that agencies not only act quickly after an outbreak occurs but also meet state standards and perform at a high level, even in light of resource constraints. Stakeholders acknowledged that the agencies effectively provide information and quickly communicate with others (including farmers, for example) when necessary. Several stakeholders also noted that strong collaborative partnerships exist between agencies and non-agency partners (such as with OVDL) and the federal government and its agencies (e.g., ODA's collaboration with USDA). Further, a subset of stakeholders also noted that agency staff members leverage existing relationships to informally share information and ensure "open lines of communication" to better assess and take advantage of their partners' resources and needs. One stakeholder mentioned that the strength of Oregon's framework is partly due to the state's strong legislation; however, the stakeholder did not further elaborate on this point.

Non-Agency Stakeholder-Perceived Weaknesses and Gaps in the State's Zoonotic Disease Response Framework

Stakeholders also noted several opportunities to address perceived or experienced weaknesses and gaps in the state's zoonotic disease response activities. In particular, comments focused on certain perceived insufficiencies related to agency responsibilities, resources, preparedness, and communication. Several of these comments spoke to themes that were also seen as strengths, highlighting that assessment of the state's zoonotic disease response activities was situationally dependent and not uniform. Several opportunities for improvement noted by stakeholders addressed:

- a lack of clear agency roles and responsibilities;
- limited resources, including staff and funds;
- potential unpreparedness for the future zoonotic disease events; and
- a lack of communication and other communication challenges.

A few stakeholders perceived that a lack of clear roles and responsibilities for agencies had led to confusion in terms of which agency should respond to zoonotic disease events, agencies overstepping their boundaries, and agencies responding to threats that were outside their jurisdiction. There was a perception of a lack of clear guidance from legislation about tracking potential zoonotic diseases in domestic and agricultural animals. It was suggested that the agencies should strengthen or institutionalize a more coordinated response effort, such as through a formalized One Health-style approach (see One Health and Zoonotic Disease shaded textbox), to ensure that all threats from potential zoonoses are managed.

Some stakeholders have suggested that developing a formalized One Health-based approach could facilitate efforts to respond to zoonotic diseases by improving communication between individuals, state agencies, and interstate and federal partners. Others, while acknowledging potential benefits of communication and collaboration between human, animal, and environmental health professionals, cite that many in the health profession—especially veterinary health practitioners—have adopted a One Health-like approach to their work, without needing to specifically identify it as such. For

example, agency personnel identified open lines of communication with their counterparts across agencies. Further, some stakeholders have expressed concerns that formalizing a One Health initiative, such as through a standing task force, could result in additional bureaucratic burden, exacerbating time constraints on individuals who work on responding to zoonotic diseases and related issues.

Stakeholders mentioned they believed that state agencies needed more resources, specifically additional funding and staff. Stakeholders noted that, without necessary resources, sustained funding, and modern workspaces, agency work is hampered. For example, some stakeholders believed that a lack of staff members tasked to work on zoonotic diseases, especially in veterinary labs, limited or delayed some agencies' capacity to respond to outbreaks or meet regulatory requirements. Moreover, some stakeholders identified that agencies relied heavily on a limited number of personnel in responding to zoonotic diseases as a potential barrier to agencies' responses to zoonotic diseases. The overreliance on a few individuals highlighted the potential for limited capacity, institutional knowledge gaps, and an overall lack of expertise and authority among an adequate number of agency staff members.

In general, stakeholders discussed the threat emerging diseases pose, but some felt that the state is not preparing for, aware of, or embracing the interconnectedness among people, animals, and the environment as it relates to zoonotic diseases. As a result, some stakeholders suggested Oregon is not fully prepared to respond to outbreaks. Relatedly, there was a perception expressed in some of the interviews that an interagency response approach did not exist. While some stakeholders thought that agencies were able to respond to legacy diseases (e.g., rabies) well, they did not think agencies were doing enough to prepare for and respond to emerging diseases, especially from the animal agriculture sector and wildlife trafficking practices. In terms of the small backyard and hobby farms, a stakeholder thought that the state was taking the right approach in not having much oversight of those animals; however, they said that this means ODA and ODFW need to be flexible and ready to respond to threats coming from those spaces, which is something other stakeholders said they are not prepared to do (e.g., as happened with COVID-19 in minks and the spread of highly pathogenic avian influenza). A delay in, or lack of, clear communication—or communication of misinformation—between agencies, legislators, and the public were seen as weaknesses in the state's response to outbreaks of zoonotic diseases. Stakeholders suggested there was not enough public education about the realities of pandemics and necessary state response occurring. Similar to stakeholders' perception that the agencies do not have coordinated response plans, they also thought the state lacked a plan for how to communicate to the public about disease outbreaks, while also acknowledging the challenging political and cultural realities that may hamper such efforts.

Non-Agency Stakeholder-Perceived Potential Unintended Outcomes

The unintended consequences of efforts by state agencies to monitor, prevent, or respond to zoonotic diseases or their carriers, as identified by stakeholders, included:

- uneven or inequitable response; and
- inappropriate responses to those efforts.

The state's approach to regulating zoonotic diseases is seen as uneven by stakeholders, where some people or operators (e.g., aviaries and wildlife rehabilitation facilities) are more highly regulated than others (e.g., hobby farmers and hunters). From a policy perspective, one stakeholder mentioned that there is a similar unevenness among neighboring states, where less-strict regulations in one state could result in an increased risk in a neighboring state.

One stakeholder thought the existing framework leads agencies to overstep their boundaries and overreact to diseases that are not as risky as perceived. The discrepancies are seen to be mainly in the animal sector (i.e., agencies in control of overseeing humans are dictating what regulations should exist in the animal sector). Other inappropriate responses that stakeholders thought resulted from the state's framework included the public's overreaction and unnecessary fear of animals and diseases they may carry; complacency by the public resulting from poor communication from the state; and a poor rollout of regulations by the state that does not work well for operators on the ground.

FRAMEWORK STRENGTHENING OPPORTUNITIES

The policy opportunities considered below were outcomes of LPRO's research and analysis of information that was collected to develop this report. None of the agencies interviewed asked for new or additional authority or specific additional resources to allow the agency to further address zoonotic diseases or their carriers. **LPRO does not have a position on the policy options provided below and inclusion does not constitute endorsement.**

As discussed below, several potential policy opportunities were identified through communication with agency liaisons and stakeholders. Policy option categories include:

- clarifying or updating statutory authority;
- improving communication and coordination;
- addressing staffing, training, and funding needs for agencies and stakeholders; and
- investing in OVDL.

Clarifying or Updating Statutory Authority

None of the agencies cited statutes that reference the terms "zoonosis" or "zoonotic disease" in relation to their activities to respond to zoonotic diseases; rather, the cited statutory language typically references disease, or a related concept, in general, which has then been interpreted by agencies to include zoonoses. LPRO did not investigate the cause underlying the omission of "zoonotic disease" or "zoonosis" in statute. As such, it is not clear whether the omission is intentional (i.e., lawmakers deliberately omitted such language when drafting legislation) or incidental (for example, the relevant

Oregon Revised Statutes' language may have been drafted prior to common usage of such language or zoonoses were not the primary issue targeted by such statutes).

Some stakeholders proposed that it could be useful to update agencies' statutory authority to specifically reference zoonotic diseases to ensure that work on the topic is given proper attention. However, formalizing statutory authorities in such a way could potentially affect the flexibility with which agencies currently address zoonoses through more informal processes and discretionary interpretation. Such flexibility was identified as a strength allowing agencies to better respond to new and emerging concerns related to zoonotic diseases. Balancing the concepts of formality and flexibility may be a challenge in drafting new legislation.

Lack of explicit authorities related to zoonotic diseases may obscure agencies roles in responding to such threats. Each agency has a lane within which they work, and within that lane, they each work up to and almost within others' lanes (e.g., ODA works most closely with livestock, but also has some work with humans, which would normally be in OHA's lane). Ensuring agencies' jurisdictional duties are clear and making sure it is clear what each agency is responsible for achieving may be a way to help agencies dedicate resources efficiently and avoid duplicative efforts, while also providing clarity to the public about who is responsible for what actions. Furthermore, clarifying expectations for an agency might help them align and strengthen their current work (e.g., veterinarian diagnostic work) to create more robust monitoring, response, and prevention capabilities. However, lack of clarity regarding agency lanes may be more of a concern for outside entities, such as stakeholders, rather than agency staff, who indicated that they may already have a strong understanding of their roles.

Stakeholders suggested agencies need to focus on response readiness and planning. One suggestion was to create better protocols for responding to diseases as they emerge and working with farmers to educate them on best practices for mitigating diseases. Although some respondents referenced the One Health approach (see shaded text box on One Health and Zoonotic Disease) in relation to this idea, there were differing opinions on how useful a One Health Approach might be for the state. Although the general concept of combining human, animal, and environmental health concerns under one umbrella was not controversial—in fact, several stakeholders and agency liaisons cited that veterinarians and other health professionals were already doing this—several individuals interviewed felt it may not be necessary to use the One Health label as it may make the concept appear academic rather than practical.

Improving Communication and Coordination on Zoonotic Diseases

Both state agencies as well as stakeholders perceived aspects of communication—either among agencies or between agencies and the public and stakeholders—and coordination as potential weaknesses to responding to zoonotic diseases in Oregon. Agencies and stakeholders also noted that responding to zoonotic diseases requires coordinating with entities outside of Oregon, including state agencies in California, Washington, and Idaho as well as federal entities, such as the FWS, NOAA, and USDA. As noted, agencies feel they have strong, if sometimes informal, avenues of

communication among selected individuals at the various agencies within Oregon and in adjoining states as well as federal counterparts.

Some stakeholders identified the possibility of creating a coordinating entity as one potential policy option to address communication and coordination gaps among state agencies, between agencies and the public, and with neighboring state and federal agencies. However, it would be necessary to clarify and balance the role of a coordinating entity with existing activities that are undertaken by state agencies (e.g., OHA has identified communicating with the public about human health issues in Oregon, which may include zoonotic diseases, as one of their responsibilities) as well as other statutorily directed activities (e.g., ODA is required and authorized by statute to work with USDA on disease-related activities).

Such a coordinating entity could take multiple forms, with varying degrees of formality. For example, a multi-agency council could be created with representatives from relevant agencies to provide a formal platform for communication between agencies and a consistent structure to establish expectations and avenues for communicating about zoonotic diseases. This could replace the, at times, informal relationships that exist between specific individuals at each agency. This could also provide institutional knowledge that establishes expectations for inter-agency communication indefinitely, insulating against communication networks that rely on individual agency staff, which could potentially be impacted by staff turnover. Such an entity could also help to clarify agency roles and streamline external communication activities allowing for a single point of contact with the public regarding zoonotic diseases.

One example of a coordinating entity is the National Invasive Species Council (NISC), which was established to provide coordination among federal departments and agencies related to addressing the introduction and spread of invasive species. (Invasive species share many characteristics with zoonotic diseases, including interstate and international distributions and exacerbation by numerous outside factors, such as climate change and animal trafficking.) Created by an executive order, NISC is co-chaired by the Secretaries of Interior, Commerce, and Agriculture.[24] Secretaries of several other relevant departments also are members of the council. The council is responsible for establishing and maintaining a federal management plan as well as ensuring that "agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective."[25] Another possible option for the creation of a multi-agency entity would be to create the entity using a One Health approach (see shaded text box on One Health and Zoonotic Disease). Such an approach could guide expectations for an umbrella entity and focus on the One Health pillars of human, animal, and environmental health.

Another option—within or independent of a coordinating entity described above—could include the formation of an advisory body consisting of state and nonstate parties. This

[24] Executive Order (EO) 13112, Invasive Species, February 3, 1999, <https://www.govinfo.gov/content/pkg/FR-1999-02-08/pdf/99-3184.pdf> (last visited November 29, 2022).
[25] *Id.*, p. 6184.

advisory body could be used to strengthen communication and coordination between state and nonstate groups, explore and promote best practices, identify response gaps, and leverage knowledge, expertise, and existing capabilities housed in various entities across the state. The executive order establishing NISC required the establishment of a task force to advise the council in such a manner. Alternatively, an example of a task force operating independently of a coordinating entity that uses a One Health approach is the New Jersey One Health Task Force, which was created through legislation and is tasked with creating a strategic plan to promote communication and collaboration.[26] The New Jersey task force consists of agency representatives as well as others with expertise related to aspects of medicine, agriculture, and zoonotic diseases (see shaded text box on One Health and Zoonotic Disease).

A coordinating body or task force could potentially address zoonotic diseases already present in the state as well as facilitate preventing emergence of future zoonotic disease. Potential aspects to be considered by such a body could include, among others:

- wildlife surveillance;
- connections between environmental factors and outbreaks of disease;
- conservation of biodiversity; and
- identification and regulation of places where humans and animals interact (e.g., wildlife markets, farms of all sizes).

Creating a multi-agency coordinating entity or advisory body could potentially result in burdens to state agencies, confuse agency "lanes," and require additional budgetary considerations. Agencies identified that inter-agency coordination and communication with state and nonstate entities were already very strong. Agency staff also highlighted the informal relationships allowed for flexibility in quickly and appropriately responding to zoonotic diseases and staff were concerned with additional bureaucratic burdens that may accompany a more formal structure. For example, added meetings may be difficult to accommodate within existing schedules and staffing levels. Conversely, agency staff as well as stakeholders identified clear delineation of responsibilities, or "lanes," as critical to responding to zoonotic diseases, and a coordinating entity could both help maintain those lanes and ensure activities are complementary rather than duplicative. However, it could also obscure the public's understanding of what activities are undertaken by individual agencies if there is a single point of communication. Finally, creating a coordination entity or an advisory body would likely require funding as well as staff support, which would either need to be diverted from existing agency resources or allocated in addition to existing resources. Lawmakers would need to balance such priorities and consider implications to how it may impact agencies' ability to carry out existing tasks (see section on Addressing Resource Needs).

[26] New Jersey Senate Bill 347, enacted June 2021 as P.L. 2021, Chapter 117, <https://pub.njleg.state.nj.us/Bills/2020/PL21/117_.PDF> (last visited November 29, 2022).

Addressing Resource Needs

As previously noted, none of the agencies interviewed asked for additional resources to further address zoonotic diseases or their carriers. However, the four agency representatives LPRO interviewed said that their agency budgets typically do not provide funding that is specifically designated for zoonotic disease monitoring, prevention, or response. Although, OHA reported that they had one FTE allocated for investigations associated with zoonotic disease activities. Additionally, they noted that staff responding to zoonotic diseases typically have other responsibilities to attend to in addition to their work on zoonotic diseases. As such, resource limitations, including staff and funding, may affect agency capacity to regulate zoonotic diseases and their carriers. For example, ODA, ODFW, and OHA liaisons all noted they had relatively few staff working on zoonotic diseases. ODA and ODFW mentioned having uneven geographical coverage in their work on zoonotic diseases.

In addition to potential staffing needs within the agencies, much of the zoonotic disease work carried out by agencies is conducted using funds that are not allocated specifically for such work or from federal sources, and ODA, ODFW, OHA, and OSP generally do not have line items in their budgets related to funding for their zoonotic disease–related activities. Instead, General Funds or funds allocated for related purposes as well as grant funding are used for agencies work on zoonotic disease. One option to prioritize zoonotic disease activities could be to dedicate funding for it by creating regular, sustainable funding sources for work on zoonotic diseases for the agencies.

From questionnaire responses and interviews with agency staff and stakeholders, LPRO was led to understand that agencies typically respond well to zoonotic disease outbreaks, adequately and quickly communicate with stakeholders, and have working relationships with corresponding staff in neighboring states and the federal government. However, it was unclear to what extent agencies have the capacity and resources to focus on emerging threats related to zoonotic diseases, including those which are known to exacerbate dangers posed by zoonoses, such as increasing wildland-urban interface, habitat loss and degradation, and climate change. In addition to current agency activities related to zoonotic diseases, there may be potential to expand resources related to these emerging threats.

Investing in the Oregon Veterinary Diagnostic Laboratory (OVDL)

Several agency staff and stakeholders that LPRO interviewed identified OVDL as paramount to responding to zoonotic diseases in Oregon. Such interviews highlighted that OVDL provides agencies with the ability to quickly process samples and diagnose diseases as well as research activities to improve diagnostic capabilities for zoonotic diseases. OVDL is the only laboratory in Oregon that is approved by the National Animal Health Laboratory Network (NAHLN).[27] This designation allows OVDL to test for certain types of diseases, including several zoonotic diseases per USDA regulations. However, in conversations with OVDL staff, they identified limitations related to existing

[27] OVDL is a National Animal Health Laboratory Network (NAHLN) level 2 laboratory; however, OVDL expressed interest in obtaining a level 1 designation within NAHLN. For more information, see the NAHLN website at <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/lab-info-services/nahln/>.

facilities and resources. Although a full discussion of OVDL is outside the bounds of this report, potential options to bolster OVDL's role in supporting efforts to address zoonotic diseases in Oregon could include providing support to upgrade and modernize lab facilities.

METHODOLOGY

Pursuant to Section 1 of HB 4128, LPRO consulted with OHA, ODA, OSP, and ODFW, as well as additional state agencies and experts with relevant knowledge.

Agency Consultation

To facilitate consultation with the four state agencies identified in the bill, LPRO requested that agency directors identify a liaison within the agency to work directly with LPRO throughout the consultation process. Each agency director delegated one or two agency staff members to act as liaisons. LPRO arranged four monthly meetings with the liaisons from May through August 2022, and LPRO analysts consulted with the agency liaisons to coordinate efforts on the report, seek advice on its development, obtain relevant information, and identify other staff within agencies who could assist with this project.

LPRO requested the agency liaisons coordinate within their agencies to complete a questionnaire developed by LPRO aimed at identifying information relevant to agency activities related to monitoring, preventing, and responding to zoonotic diseases (Appendix A). After receiving the completed questionnaire, LPRO arranged follow-up interviews with the agency liaisons and other agency staff invited by the liaisons to clarify and further inform the report. Agency liaisons were further asked to coordinate review of a draft of this report.

Agency Questionnaires

The questions were divided roughly by subject. Each question addressed aspects related to monitoring, preventing, and responding—including enforcement activities—to zoonotic diseases or the species that may harbor, transmit, or spread them. Such carrier species may include, but are not limited to, prohibited or invasive species, whether living or dead, or parts thereof. Liaisons interpreted the questions to be broadly inclusive of any activities or authorities that may be related to zoonotic diseases or their carriers as understood by each agency. The agency questionnaire is included in Appendix A.

Agency interviews

After receiving questionnaire responses, LPRO scheduled a follow-up conversation with liaisons from each agency individually in late July and early August 2022. Interview questions were not predetermined but, rather, were used to follow up on the questionnaire.

Stakeholder Interviews

HB 4128 authorized LPRO to consult with experts on the subject to gather information relevant to its research. LPRO identified such subject experts to interview in late June and conducted interviews in June and July 2022. Individuals were identified through several pathways, including their participation in the hearing process for HB 4128 as well as referral by identified stakeholders, legislators, or agency liaisons. The interview questions are included in Appendix B.

OVDL Visit

In November 2022, LPRO staff members toured the laboratories at OVDL on Oregon State University's campus. Faculty and staff provided an overview of their work and collaboration with agencies, discussed their resource needs, and reiterated their role in diagnosing zoonotic diseases. The tour of the laboratory consisted of visiting laboratory spaces (necropsy, clinical pathology, bacteriology, parasitology, virology, and serology) and hearing from staff members about their specialties.

APPENDICES

LEGISLATIVE POLICY AND RESEARCH OFFICE
OREGON STATE LEGISLATURE
900 COURT STREET, NE
SALEM, OR 97301
https://www.oregonlegislature.gov/lpro

HOUSE BILL 4128 – ZOONOTIC DISEASE STUDY

Agency Questionnaire

Pursuant to Section 1, House Bill 4128, enacted on March 3, 2022, the Legislative Policy and Research Office (LPRO) is required to prepare a report evaluating the state's current "framework for monitoring, preventing, and responding to zoonotic diseases." To prepare said report, LPRO has been instructed to consult with the Oregon Health Authority, Oregon State Police, State Department of Agriculture, and State Department of Fish and Wildlife.

HB 4128 requires the report to be submitted to the Legislative Assembly on or before December 31, 2022.

The relevant section of HB 4128 is included below.

SECTION 1. (1) The Legislative Policy and Research Office, in consultation with the Oregon Health Authority, the Oregon State Police, the State Department of Agriculture and the State Department of Fish and Wildlife, shall prepare a report that evaluates Oregon's current framework for monitoring, preventing and responding to zoonotic diseases and recommends ways to strengthen the framework.

(2) The authority, the Oregon State Police, the State Department of Agriculture and the State Department of Fish and Wildlife shall consult on the report, provide information necessary for development of the report and advise on development of the report, as requested by the office.

(3) To develop the report, the office may consult with bona fide scientific or educational institutions, as defined in ORS 498.022, state veterinarians, state agencies and any other experts with relevant expertise.

(4) The office shall present the report to a committee or interim committee of the Legislative Assembly related to public health, in the manner provided under ORS 192.245, on or before December 31, 2022 (*HB 4128*).

In consultation with any relevant staff within your agency, please fill out the following questionnaire to the best of your ability. Please provide your responses in writing by **Friday, July 1, 2022**. After receiving these responses, LPRO will schedule an opportunity for a follow up conversation with each agency individually.

Please feel free to contact either Erin or Eliot with any questions.

- Erin Pischke (Erin.Pischke@oregonlegislature.gov, (503) 986-1533)
- Eliot Crafton (Eliot.Crafton@oregonlegislature.gov, (503) 986-1525)

The following questions are divided roughly by subject. Each question addresses aspects related to monitoring, preventing, and responding—including enforcement activities—to zoonotic diseases or the species that may harbor, transmit, or spread them. Such carrier species may include, but are not limited to, prohibited or invasive species, whether living or dead, or parts thereof. Please interpret the following questions to be broadly inclusive of any activities or authorities that may be related to zoonotic diseases or their carriers as understood by your agency.

Regulatory and Statutory Authority

1. Does your agency directly or indirectly regulate zoonotic diseases or their carriers—including, but not limited to, activities related to monitoring, prevention, response, or enforcement?

2. If so, under what statutory authority does your agency directly or indirectly regulate zoonotic diseases or their carriers? Please identify any such authority and describe your agency's interpretation of such authority.

    a. Is the charge to address zoonotic diseases or their carriers explicit in the identified statute or based on agency interpretation?

3. Based on any identified statutory authority and interpretation of such authority, what are your agency's objectives in regulating zoonotic diseases or their carriers?

4. On a scale of 1 (minimally) to 10 (completely), how successful is your agency at accomplishing the identified objectives through existing activities? Please select a rating for each objective identified in Question 3 and describe how you arrived at that rating.

5. Please describe any activities your agency undertakes to meet the identified objectives to regulate zoonotic diseases or their carriers.

6. Please describe anything that limits your agency's ability to carry out the identified activities or meet your objectives.

7. Pursuant to existing statutory authority, what additional activities, if any, could your agency carry out to meet the identified objectives?

8. If additional activities were identified above, but not currently being implemented, what is preventing your agency from carrying these out?

9. What additional, or new, statutory authority could allow your agency to further address zoonotic diseases or their carriers?

10. How many FTE, on average, does your agency commit to regulating zoonotic diseases or their carriers?

11. In dollars, how much does your agency spend to regulate zoonotic diseases or their carriers per fiscal year?

Coordination and Collaboration

For the following questions, please consider any collaboration or coordination in responding to zoonotic diseases or their carriers between your agency and:

- other executive branch agencies;
- academic institutions;
- veterinary institutions;
- agencies in other states;
- federal agencies;
- nonprofit/nongovernmental organizations; or
- any other entities.

1. Please identify any collaborators and describe any benefits or challenges in the relationship.

2. Does your agency have statutory authority to coordinate or collaborate with such entities? Please identify and describe your agency's interpretation of any such authority.

    a. Is the charge to coordinate or collaborate mandatory or discretionary?

3. Are there benefits to interagency coordination? If so, please describe any such benefits.

4. Does anything limit your agency's ability to coordinate or collaborate with other entities? If so, please describe any such limitations.

One Health

1. Does your agency employ a One Health approach? If so, please describe this approach. As an example, this is how the Centers for Disease Control and Prevention describe their approach (https://www.cdc.gov/onehealth).

LEGISLATIVE POLICY AND RESEARCH OFFICE
OREGON STATE LEGISLATURE
900 COURT STREET, NE
SALEM, OR 97301
https://www.oregonlegislature.gov/lpro

HOUSE BILL 4128 – ZOONOTIC DISEASE STUDY

Stakeholder Interview

Pursuant to Section 1, House Bill 4128, enacted on March 3, 2022, the Legislative Policy and Research Office (LPRO) is required to prepare a report evaluating the state's current "framework for monitoring, preventing, and responding to zoonotic diseases." To prepare said report, LPRO has been instructed to consult with the Oregon Health Authority, Oregon State Police, State Department of Agriculture, and State Department of Fish and Wildlife as well as any other experts with relevant expertise.

HB 4128 requires the report to be submitted to the Legislative Assembly on or before December 31, 2022.

The relevant section of HB 4128 is included below.

SECTION 1. (1) The Legislative Policy and Research Office, in consultation with the Oregon Health Authority, the Oregon State Police, the State Department of Agriculture and the State Department of Fish and Wildlife, shall prepare a report that evaluates Oregon's current framework for monitoring, preventing and responding to zoonotic diseases and recommends ways to strengthen the framework.
(2) The authority, the Oregon State Police, the State Department of Agriculture and the State Department of Fish and Wildlife shall consult on the report, provide information necessary for development of the report and advise on development of the report, as requested by the office.
(3) To develop the report, the office may consult with bona fide scientific or educational institutions, as defined in ORS 498.022, state veterinarians, state agencies and any other experts with relevant expertise. (HB 4128)

Over the next hour, we are hoping to better understand your perspectives, as experts with relevant expertise, on Oregon's efforts to monitor, prevent, and respond to zoonotic diseases as well as how these efforts may affect your organization and individuals with whom your organization works.

Notice for Possible Public Disclosure

To aid in our collection of information and for record keeping purposes, we will be taking notes on our conversation. Although these notes will be for internal use by the Legislative Policy and Research Office in our efforts to develop a report as required by HB 4128, any such notes taken may be subject to requests for records filed pursuant to Oregon's Public Record Law (ORS Chapter 192).

General Questions

When answering the following questions, please specify if activities you are referring to are undertaken by your organization or if such activities are undertaken by member organizations or organizations you work with.

Before we get started, do you have any questions for us?

1. Please describe your organization and how your organization's interests intersect with zoonotic diseases or their carriers as well as Oregon's efforts to monitor, prevent, or respond to zoonotic diseases or their carriers.

2. What state agencies, if any, do you/your organization work with to monitor, prevent, or respond to zoonotic diseases or their carriers? Please describe these activities.

3. What nonstate entities, if any, do you/your organization work with to monitor, prevent, or respond to zoonotic diseases or their carriers? Please describe these activities.

4. How successful are efforts in Oregon, including both state-led and nonstate efforts, to monitor, prevent, or respond to zoonotic diseases?
    a. What do you see as the strengths and weaknesses of these efforts?

5. Are there any gaps in the existing efforts, and if any, what is the cause of these gaps?

6. What, if anything, could entities in Oregon—either state agencies or nonstate entities—do differently in their efforts to address zoonotic diseases or their carriers?

7. What, if any, concerns do you have regarding unintended consequences of efforts by Oregon to monitor, prevent, or respond to zoonotic diseases or their carriers?
    a. How would you propose mitigating such concerns?

One Health

1. Do you/your organization have any experience with a One Health approach in your activities? As an example, this is how the Centers for Disease Control and Prevention describe their approach (https://www.cdc.gov/onehealth).
    a. If so, please describe this approach.

Remaining Time

In the remaining time, is there anything else you would like to discuss regarding efforts to monitor, prevent, or respond to zoonotic diseases or their carriers?

When writing the final report, we may need to include that we conducted interviews with stakeholders when describing our methodology. Would it be okay with you if we included your name or the name of your organization in such a reference? We do not anticipate attributing comments directly to stakeholders but may summarize and aggregate comments as suited to the report.

If you have any additional thoughts or questions you would like to share with us, please feel free to contact either. Our contact information has been provided to your email as follows:

- Erin Pischke (Erin.Pischke@oregonlegislature.gov, (503) 986-1533)
- Eliot Crafton (Eliot.Crafton@oregonlegislature.gov, (503) 986-1525)