

Oregon Wildlife Foundation Coverboard Project
Progress Report
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In 2017, Oregon Wildlife Foundation (OWF) awarded Oregon Department of Fish and Wildlife (ODFW) a \$3,280 grant to support a project designed to initiate development of a more systematic understanding of reptile and amphibian distribution in the Rogue River watershed. Reptile and amphibian distribution in the Rogue River watershed is scant, at best, available information consists largely of descriptive regional summaries, many of which are dated (Fitch 1936; St. John 1982, 1984). Coverboards are the gold standard among passive sampling methods for reptiles (Grant et al. 1992), but are also secondarily useful for amphibians (Grant et al. 1992, Fellers and Drost 1994). For this reason, we made coverboards the primary tool for this effort; hence, hereafter, we label this Coverboard Project.

The Coverboard Project had two key components: 1) a focused survey of the Denman Wildlife Area (DWA), a large (1,858 acres) state-owned preserve located in the upper Rogue Valley; and 2) a citizen science project in the Rogue River watershed designed to help educate the public about reptiles and amphibians. Collectively, the goals of this project were to: a) gain a better and more current understanding of the amphibian and reptile present on the DWA and their general habitat utilization patterns, b) initiate a citizen science project throughout the Rogue watershed to improve public awareness of amphibians and reptiles and broaden Oregon Department of Fish and Wildlife (ODFW) information gathering capacity on that fauna, and c) compare traditional visual encounter surveys to the surveys using coverboards of different types.

Grant funds from OWF enabled purchase of materials critical to this effort, including 100 pairs of coverboards (100 each of aluminum and plywood) and 40 temperature loggers for the DWA survey, the research component of the project; and 50 cover boards for the citizen science effort. In the remaining narrative, we describe progress on the two key components of the Coverboard Project.

DWA Component

ODFW screen shop staff cut the coverboards to the two sizes planned for use in the study (2 × 2 ft and 2 × 4 ft sizes). Pairs deployed were an aluminum and a plywood coverboard of the same size. We deployed 50 pairs of each size on DWA in the interval January-March 2018 at randomly generated locations. Locations were randomly selected within a screen that eliminated areas with high visibility to minimize theft and vandalism and loss due to overwinter water levels. Wildlife area staff prepped board locations to ensure their proper seating on the substrate, deployed the boards, and ODFW staff and five volunteers helped monitor the boards. We also deployed temperature dataloggers under 10 pairs of coverboards for each of the two sizes. Temperature dataloggers were used to be able to examine the relationship between beneath-board temperature profiles and sampling success for different species.

We checked the entire series of boards twice a month between early April and the first week in June. We also conducted Visual Encounter Surveys (VES) in a radius of 5 m around each board pair location (Figure 1). Other non-coverboard objects and series of coverboards that had been deployed three years previously (in 2015) were also checked during these surveys; we

classified checks of both non-coverboard objects and previously deployed coverboards as incidental to distinguish them from the focal coverboard effort.

Results: In 2018, we began monitoring coverboards on 3 April and completed monitoring on 11 June. We found only four individual reptiles, all of them Southern Alligator Lizards (*Elgaria multicarinata*) under coverboards over the 69-day survey period. No other amphibians or reptiles were found under the focal coverboards, though two Pacific treefrogs (*Hyla* [formerly *Pseudacris*] *regilla*) and one Western Fence Lizard (*Sceloporus occidentalis*) was found during a VES near three different coverboard pairs, one each on 9 April, 13 April, and 2 May 2018.

More observations of amphibians and reptiles were made from both beneath incidental pieces of cover and as incidental observations (not associated with cover). In particular, we made observations of 17 amphibians and reptiles under incidental pieces of cover and incidental observations of 20 amphibians and reptiles. The earliest observation under incidental cover was of two Gopher Snakes (*Pituophis catenifer*) on 3 April 2018, and a total of six different species of amphibians and reptiles were observed under incidental pieces of cover (Table 1). The earliest incidental observation (not associated with a cover object) was of a Common Garter Snake (*Thamnophis sirtalis*) made on 4 April 2018, and a total of five different species of amphibians and reptiles were observed incidentally in this manner (Table 1).

Table 1. Summary of Reptile and Amphibian Observations from Focal Coverboards, Incidental Cover, and Incidental Observations. This summary represents raw data unadjusted for effort in each observational category.

Scientific Name	Standard English Name (aka Common Name)	Numbers of Observations		
		Focal Coverboards	Incidental Cover	Incidental Observation
<i>Ambystoma macrodactylum</i>	Long-toed Salamander	0	2	0
<i>Coluber constrictor</i>	Yellow-bellied Racer	0	1	0
<i>Contia tenuis</i>	Sharp-tailed Snake	0	4	0
<i>Elgaria multicarinata</i>	Southern Alligator Lizard	4	4	2
<i>Hyla regilla</i>	Pacific Treefrog	1 ^a	0	1
<i>Pituophis catenifer</i>	Gopher Snake	0	4	0
<i>Rana catesbeiana</i>	American Bullfrog	0	0	9
<i>Sceloporus occidentalis</i>	Western Fence Lizard	0	2	3
<i>Thamnophis sirtalis</i>	Common Garter Snake	0	0	5
Total Observations		5	17	20
Total Species		2	6	5

^aThe sole treefrog observation was from a VES survey rather than beneath the coverboard.

Rigorous analysis of these data will be forthcoming, but one observation merits comment. Given the amount of area sampled at what was presumptively the ideal time of year, numbers seem low for all categories of observations. We offer three points for evaluation. First, the poor showing for the focal coverboards may reflect insufficient time after board deployment for reptiles or amphibians to recognize their location. Past research clearly indicates that coverboards need time to be recognized as cover, namely for amphibians and reptiles to actually recognize that they are present (Grant et al. 1992, Tietje and Vreeland 1997). Though the precise amount of time needed for recognition of their presence is uncertain, it may require as much as six months during

the activity season (M. Hayes, personal observation). We anticipate that this hypothesis can be easily evaluated during a second year of effort with the same board array. Second, incidental cover data and incidental observations do not appear dramatically better. This could reflect the possibility that reptile and amphibian populations on DWA are suboptimal. Rigorous sampling of incidental cover and rigorous VES surveys in a second year and illuminate this possibility. Third, timing of surveys may have been suboptimal given coverboard temperature profiles, meaning sampling did not begin early enough when greater coverboard use might occur. Examination of temperature datalogger temperature profiles and comparing this with the results of a second year surveys for either support or eliminate this possibility.

Despite relatively careful coverboard deployment, human disturbance may have affected some reptile and amphibian coverboard use. One pair of boards was stolen the first week, while another set was moved several times between checks by unknown individuals (probably not animals). We intend to move these boards the next season. Because we fully anticipate that a few more boards will be lost or moved due to human disturbance or environmental changes (vegetation encroachment). As the grant request did not include funding for reserve resources, additional materials were purchased with ODFW funding. Pre-survey season monitoring will occur to take inventory of what boards remain on the ground in late winter to determine which boards need replacement.

Rogue Watershed Citizen Science Component

We created an iNaturalist project page for citizen scientists to upload observations from coverboards deployed on their properties (Figure 3). Coverboards provided to citizen scientists were stamped with OWF to recognize the foundation's contribution to the project. Participants in an Oregon State University Master Naturalist course were offered to electively partake in the project and four took home at least one board. In coming years, this class will likely provide more participants to the Coverboard Project. Boards were also provided to staff at the Rogue River Preserve to monitor during "bioblitz" events on the site and US Forest Service ranger station in Prospect, OR.

Citizen Science participants were each provided a flyer describing the suggested placement of their coverboards and instructions for uploading observations. Since participants received their cover boards after the known peak activity months during the 2018, they were advised to place the boards for acclimation until the 2019 peak activity season. To date, one observation has been recorded onto the iNaturalist page; an *Eligaria spp.* that was identified to genus due to lack of detail in the picture. About half of the original boards purchased remain, which will be beneficial since we anticipate that more observations and participants will be added next year, when the project has had the benefit of additional exposure and focused marketing for future seasons.

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Figure 1: District Wildlife Biologist Steve Niemela conducts a Visual Encounter Survey at a coverboard pair in the Military Slough Unit of Denman Wildlife Area.



Figure 2: Southern Alligator Lizard observed under coverboard in the NE corner of the Military Slough unit on Denman Wildlife Area.

The screenshot shows the iNaturalist website interface. At the top, there is a navigation bar with the iNaturalist logo and menu items: Observations, Species, Projects, Places, Guides, and People. On the right side of the navigation bar, there are icons for home, star, settings, and a smiley face, along with the text 'Log in or Sign Up'. Below the navigation bar, the project title 'Rogue Watershed Citizen Science Coverboard Project' is displayed. To the right of the title is a red button that says 'ADD OBSERVATIONS'. Below the title, there is a 'Stats' section with a green background. The stats section shows 'Totals' with 'Observations - 0' and 'Species - 0'. To the right of the stats section, there are three columns: 'Most Observations' with a person icon and 'Unknown', 'Most Species' with a person icon and 'Unknown', and 'Most Observed Species' with a person icon and 'Unknown'. The main content area features a photograph of a person in a plaid shirt and a hat, kneeling in a field and handling a wooden coverboard. The background of the photo is a field of tall grass and trees.

Figure 3: Screenshot of the iNaturalist page for the Rogue Watershed Citizen Science Coverboard Project. Inset picture: Southern Oregon University student, Mac Gargus, checks a pair of coverboards for the Denman Wildlife Area coverboard research project.