

The Oregon Marbled Murrelet Project

2015-2025



Principal Investigators

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**OREGON MARBLED
MURRELET PROJECT**

PROJECT SUMMARY

The Marbled Murrelet (*Brachyramphus marmoratus*, hereafter murrelet) is a small seabird that inhabits coastal areas along the Pacific Ocean in western North America from Alaska to California. This species is of conservation concern, with populations residing in California, Oregon, and Washington currently listed as “threatened” under the U.S. Endangered Species Act (ESA). Unlike most seabirds, the murrelet can move >80 km inland for breeding, using nesting platforms located on large trees primarily in mature and old growth stands. Given their small size and furtive behavior, locating active murrelet nests has proven exceptionally challenging, and has resulted in several significant knowledge gaps that impede conservation of this species, including in coastal forests of western Oregon and led to uncertainty for managers of private and state forestlands in the face of increased protections for the murrelet.

In response to calls for new research to inform coastal forest management, the College of Forestry (CoF) at Oregon State University (OSU) initiated a large-scale, long-term study in May 2016 to acquire new information on murrelet nesting habitat requirements and evaluate factors that affect breeding success at the landscape scale. Four distinct, interrelated objectives were established at the onset of the project: (1) landscape-scale habitat modeling with existing occurrence and nest location data, (2) intensive demographic monitoring that would require finding a relatively large sample of active murrelet nests, (3) evaluating social attraction as a potential restoration approach for murrelets, and (4) a forest management experiment that tested murrelet sensitivity to adjacent harvest operations and predator movements. The first three objectives were met successfully; the last objective (forest management experiment) was planned for the Elliott State Research Forest but ultimately could not be completed after OSU scaled back its involvement with that forest.

During five years covering 2017-2022 – and excluding 2020 due to the COVID-19 pandemic – the Oregon Marbled Murrelet Project research team collected data and completed research to inform management that balances murrelet habitat conservation and timber production in Oregon’s coastal forests. Results from this project have produced several key findings, including:

- Evidence that a subset of the central Oregon population undertook long-distance movements during summer to waters outside of the state and to different at-sea survey zones used for state and federal population monitoring and listing decisions.
- Murrelet nesting habitat declined by ~20% in the Pacific Northwest during 1988-2020 while fragmentation increased by 17%, with most changes occurring on private industrial lands.
- An increase of 128% in the number of active murrelet nests found in Oregon, all of which were located using radio-telemetry to produce an unbiased sample of nest site locations.
- Ocean conditions and loss of older forest together strongly influenced murrelet occupancy dynamics in suitable nesting habitat, with lower occupancy in poor ocean years.

- Breeding propensity of radio-tagged murrelets in this study (13.3%) was lower than in most previous studies, particularly during ocean conditions deemed unfavorable for nesting.
- Nest survival in this study was relatively low in comparison to previous studies, and a variety of avian predators caused nest failure, including a heretofore undocumented nest predator.
- Experimental use of social attraction (audio playback) increased murrelet occupancy and may prove to be a valuable tool for future conservation efforts.

Although financial support for the project from the OSU CoF has ended at the time of this writing, there are several ongoing projects that will continue to inform murrelet conservation and management within Oregon’s coastal forests well into the future (see below).

THE OREGON MARBLED MURRELET PROJECT, BY THE NUMBERS

- 375 adult murrelets captured at-sea over the course of 5 field seasons
- 300 murrelets tagged with VHF radio-telemetry tags
- 183 at-sea research cruise nights scheduled
- 68 at-sea research cruise nights successfully completed
- 37 active murrelet nests located
 - 11 nests fledged young
 - 26 nests failed
 - 17 nests failed during the egg stage
 - 3 nests failed due to egg abandonment
 - 14 nests failed due to inferred predation
 - 9 nests failed during the chick stage
 - 2 nests failed due to Red-tailed Hawk predation
 - 2 nests failed due to Common Raven predation
 - 1 nest failed due to Steller’s Jay predation
 - 1 nest failed due to apparent chick starvation
 - 2 nests failed due to chick falling from nest tree
 - 1 fallen chick successfully rehabilitated and released
 - 1 nest failed due to inferred predation
- 17,695 hours of video of murrelet nest activity recorded
 - 4,904 hours of incubation stage
 - 12,791 hours of nestling stage
 - 1,332 individuals chick provisioning events quantified

PROJECT PERSONNEL

Postdoctoral Research Associates

Gianluca Cerullo
Sophie-Marie Garcia-Heras
Joseph Northrup
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Program Manager

Jennifer Bailey Guerrero

Faculty Research Assistants

Lindsay Adrean
Jonathan Dachenhaus
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Amanda Wilson
Ethan Woodis

Laboratory Technicians

Kaitlyn Osborne

Graduate Students

Cecelia Frisinger (M.S.)
Miranda Michlanski (DVM, M.S.)
Kelsey Ryan (DVM, M.S.)
Ethan Woodis (M.S.)

Scientific Advisory Committee

Dr. Alan Burger, University of Victoria
Dr. Anthony Gaston, Queens University
Dr. John Piatt, US Geological Survey
Dr. Martin Raphael, USDA Forest Service

Project Advisory Committee

Seth Barnes, Oregon Forest & Industries Council
Max Beeken, Wild Rivers Land Trust
Esther Lev, The Wetlands Conservancy
Nick Palazzotto, Oregon Department of Forestry
Anne Poopatanapong, USDA Forest Service
Robert Salinger, Portland Audubon Society
Jake Verschuyf, National Council for Air and Stream Improvement

Field Technicians

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Stefanie Collar
Nicole DeFelice
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Eve Hallock
Emily Hamant
Rachel Handy
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Libby Kennedy
Chelsea Klocke
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Eric Matechak

Ariel Mitchell
Ian Moffit
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Jason Piasecki
Brendan Popp
Amanda Powell
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Jane Rudebusch
Cameron Rudibaugh
Cassidy Ruge
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Cheyenne Stephens
Katie Stoner
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Nate Owen
Bella Padgett
Jason Piasecki
Vanessa Ramirez
Victoria Roberts
Ellie Rondon
Mariah Stephens
Rebecca Warren

PEER-REFEREED JOURNAL PUBLICATIONS

[#]Graduate student, [§]post-doctoral trainee, or ⁺research associate affiliated with the OMMP.

Michlanski, M., J. Dachenhaus⁺, J. Johns, S. K. Nelson, S. Phelps, J. W. Rivers, D. D. Roby, E. Woodis, K. Ryan, L. J. Adrean⁺, J. L. Sanders, and B. R. Beechler. 2025. The epidemiology of a novel *Leucocytozoon* parasite in an endangered population of Marbled Murrelets (*Brachyramphus marmoratus*) on the Oregon Coast. *International Journal of Parasitology: Parasites and Wildlife* 27:101078.

<https://doi.org/10.1016/j.ijppaw.2025.101078>

Ryan, K., L. Adrean⁺, M. G. Betts, J. Dachenhaus⁺, J. Johns, M. Michlanski, S. K. Nelson, S. Phelps, J. W. Rivers, D. D. Roby, E. Woodis⁺, and B. Beechler. 2025. White blood cell estimates correlate to measures of population and individual health in an endangered population of Marbled Murrelets (*Brachyramphus marmoratus*). *Frontiers in Veterinary Science* 12:1545905. <https://doi.org/10.3389/fvets.2025.1545905>

[§]Valente, J. J., L. J. Adrean⁺, S. K. Nelson, M. G. Betts, D. D. Roby, and J. W. Rivers. 2024. Presence-absence surveys yield spatially imprecise information about nesting sites of an endangered, forest-nesting seabird. *PLOS ONE* 19(12):e0315531.

<https://doi.org/10.1371/journal.pone.0315531>

[§]Garcia-Heras, M. S., C. Wolf, J. Bailey Guerrero⁺, L. J. Adrean⁺, S. K. Nelson, D. D. Roby, M. G. Betts, and J. W. Rivers. 2024. Marine habitat use and movement in response to ocean warming by a threatened forest-nesting seabird. *Global Ecology and Conservation* 50:e02857. <https://doi.org/10.1016/j.gecco.2024.e02857>

Duarte, A., M. J. Weldy, D. B. Lesmeister, Z. J. Ruff, J. M. A. Jenkins, J. J. Valente, and M. G. Betts. 2024. Passive acoustic monitoring and convolutional neural networks facilitate high-resolution and broadscale monitoring of a threatened species. *Ecological Indicators* 162:112016. <https://doi.org/10.1016/j.ecolind.2024.112016>

[§]Valente, J. J., J. W. Rivers, Z. Yang, S. K. Nelson, J. M. Northrup, D. D. Roby, C. Meyer, and M. G. Betts. 2023. Fragmentation effects on an endangered species across a gradient from the interior to edge of its range. *Conservation Biology* 37(5):e14091.

<https://doi.org/10.1111/cobi.14091>

Fountain, E. D., P. J. Kulzer, R. T. Golightly, J. W. Rivers, S. F. Pearson, M. G. Raphael, M. G. Betts, S. K. Nelson, D. D. Roby, N. F. Kryshak, S. Schneider, and M. Z. Peery. 2023. Characterizing the diet of a threatened seabird, the Marbled Murrelet *Brachyramphus marmoratus*, using high-throughput sequencing. *Marine Ornithology* 51(2):145-155.

<http://www.marineornithology.org/article?rn=1528>

Rivers, J. W., J. Bailey Guerrero⁺, R. D. Brodeur, G. K. Krutzikowsky, L. J. Adrean⁺, S. A. Heppell, K. C. Jacobson, K. Milligan, S. K. Nelson, D. D. Roby, W. J. Sydeman, L. G. Torres, and J. A. Barth. 2022. Critical research needs for forage fish within inner-shelf marine ecosystems. *Fisheries* 47(5):213–221. <https://doi.org/10.1002/fsh.10725>

[§]Valente, J. J., S. K. Nelson, J. W. Rivers, D. D. Roby, and M. G. Betts. 2021. Experimental evidence that social information affects habitat selection in Marbled Murrelets. *Ornithology* 138(2):ukaa086. <https://doi.org/10.1093/ornithology/ukaa086>

Betts, M. G., J. M. Northrup, J. A. Bailey Guerrero, L. J. Adrean⁺, S. K. Nelson, J. L. Fisher, B. D. Gerber. M.-S. Garcia-Heras[§], Z. Yang, D. D. Roby, and J. W. Rivers. 2020. Squeezed by a habitat split: warm ocean conditions and old-forest loss interact to reduce long-term occupancy of a threatened seabird. *Conservation Letters* 13(5):e12745. <https://doi.org/10.1111/conl.12745>

[§]Northrup, J. M., J. W. Rivers, S. K. Nelson, D. D. Roby, and M. G. Betts. 2018. Assessing the utility of satellite transmitters for identifying nest locations and foraging behavior of the threatened Marbled Murrelet *Brachyramphus marmoratus*. *Marine Ornithology* 46(1):47–55. <https://sora.unm.edu/node/143264>

EXPECTED FUTURE PEER-REFEREED PUBLICATIONS

Isotopic niche of the Marbled Murrelet shifts under divergent ocean conditions. Target journal: *Marine Ecology Progress Series*.

Simulated soundscapes and transfer learning boost the performance of acoustic classifiers under data scarcity. Target journal: *Methods in Ecology and Evolution*.

Warm oceans markedly reduce chick provisioning by the endangered Marbled Murrelet. Target journal: *Ornithology*.

Habitat edges and fragmentation influence multi-scale nest site selection in the Marbled Murrelet. Target journal: *Ornithological Advances*.

Assessing recent and historical levels of microplastics in the offspring of an endangered seabird. Target journal: *Marine Pollution Bulletin*.

Evaluating variation in prey use by Marbled Murrelets during warm and cool ocean periods. Target journal: *Journal of Applied Ecology*.

Fire as an important historical disturbance at Marbled Murrelet nest sites in a moist coastal forest. Target journal *Forest Ecology and Management*.

PRESENTATIONS AT SCIENTIFIC CONFERENCES

[#]Graduate student, [§]post-doctoral trainee, or ⁺research associate affiliated with the OMMP.

⁺Bailey Guerrero, J., A. Merschel, S. K. Nelson, M. Betts, J. W. Rivers, D. Roby, L. Adrean⁺, C. Ruge, K. Wright, and M. Krawchuk. The role of disturbance in shaping the mature to old-growth forest habitat for Marbled Murrelet in the western Oregon Coast Range. Presentation at the joint meeting of the Northwest Science Association and the Northwest Lichenologists, Eugene, OR. March 18, 2025.

[#]Frisinger, C. E., K. A. Hobson, D. D. Roby, S. K. Nelson, M. G. Betts, and J. W. Rivers. Marbled Murrelet (*Brachyramphus marmoratus*) chick provisioning behavior across divergent ocean conditions. Presentation at the joint meeting of the Oregon chapter of The Wildlife Society and the Oregon Society for American Foresters, Salem, OR. February 5, 2025.

⁺Bailey-Guerrero, J., A. Merschel, K. Nelson, M. Betts, J. W. Rivers, D. Roby, L. Adrean⁺, C. Ruge, K. Wright, and M. Krawchuk. The role of disturbance in shaping nesting habitat for Marbled Murrelet in the western Oregon Coast Range. Presentation at the joint meeting of the Oregon chapter of The Wildlife Society and the Oregon Society for American Foresters, Salem, OR. February 5, 2025.

[#]Frisinger, C. E., K. A. Hobson, D. D. Roby, S. K. Nelson, M. G. Betts, and J. W. Rivers. Contrasting ocean conditions affect the trophic ecology of a threatened seabird, the Marbled Murrelet, during the pre-nesting period. Presentation at the joint meeting of the Waterbird Society and Pacific Seabird Group, La Ribera de Belen Heredia, Costa Rica. January 7, 2025.

[#]Frisinger, C. E., J. C. Dachenhaus⁺, K. E. Osborne⁺, D. D. Roby, S. K. Nelson, M. G. Betts, and J. W. Rivers. Marbled Murrelet chick provisioning under divergent ocean conditions. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Seattle, WA. February 23, 2024.

[#]Woodis, E., J. W. Rivers, S. K. Nelson, D. D. Roby, and M. G. Betts. Characteristics of active Marbled Murrelet nest sites in Oregon. Poster presentation at the annual meeting of the Pacific Seabird Group, Seattle, WA. February 22, 2024.

⁺Osborne, K. E., C. E. Frisinger[#], D. D. Roby, and J. W. Rivers. Prey size estimation for seabirds transporting prey to their nests in their bills using free, open-source software. Poster presentation at the annual meeting of the Pacific Seabird Group, Seattle, WA. February 22, 2024.

Rivers, J. W., L. J. Adrean⁺, J. A. Bailey Guerrero⁺, J. Dachenhaus⁺, J. L. Fisher, C. Frisinger[#], M.-S. Garcia Heras[§], B. D. Gerber, C. B. Meyer, S. K. Nelson, J. M. Northrup, D. D. Roby, J.

Valente[§], C. Wolf, E. Woodis[#], Z. Yang, and M. G. Betts. Warming ocean conditions curtail breeding activity of the Marbled Murrelet, a most unusual forest-nesting bird. Contributed oral presentation at the annual meeting of the Oregon chapter of The Wildlife Society, Hood River, OR. February 14, 2024.

[#]Michlanski, M. K., J. L. Sanders, J. W. Rivers, K. L. Yates, and B. R. Beechler. Consequences of parasitism in an endangered population of Marbled Murrelets on the Oregon coast. Poster presentation at the annual meeting of the American Association of Zoo Veterinarians, Nashville, TN. September 18, 2023.

Rivers, J. W., L. J. Adrean⁺, J. A. Bailey Guerrero⁺, J. Dachenhaus⁺, J. L. Fisher, C. Frisinger[#], M.-S. Garcia Heras[§], B. D. Gerber, C. B. Meyer, S. K. Nelson, J. M. Northrup, D. D. Roby, J. Valente[§], C. Wolf, E. Woodis[#], Z. Yang, and M. G. Betts. Influence of a warming ocean on the breeding activity of a most unusual – and threatened – forest-nesting bird. Invited oral presentation at the annual meeting of the American Ornithological Society, London, Ontario, Canada. August 11, 2023.

[§]Valente, J. J., J. W. Rivers, Z. Yang, S. K. Nelson, J. M. Northrup, D. D. Roby, C. B. Meyer, and M. G. Betts. Ongoing forest fragmentation negatively affects the distribution of an endangered forest-breeding bird. Invited oral presentation at the annual meeting of the American Ornithological Society, London, Ontario, Canada. August 11, 2023.

[#]Woodis, E. W., M. G. Betts, and J. W. Rivers. Nest habitat assessment of Marbled Murrelets (*Brachyramphus marmoratus*). Contributed oral presentation at the annual meeting of the Western Forestry Graduate Research Symposium, Corvallis, OR. April 14, 2023.

[#]Frisinger, C., J. C. Dachenhaus, D. D. Roby, S. K. Nelson, M. G. Betts, and J. W. Rivers. Chick provisioning of a threatened seabird under divergent ocean conditions. Poster presentation at the annual meeting of the Western Forestry Graduate Research Symposium, Corvallis, OR. April 14, 2023.

[§]Valente, J. J., J. W. Rivers, Z. Yang, S. K. Nelson, J. M. Northrup, D. D. Roby, C. B. Meyer, and J. G. Betts. Negative effects of ongoing habitat fragmentation on Marbled Murrelets are amplified near its range edge. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, San Diego, CA. February 17, 2023.

[#]Michlanski, M. J. Sanders, J. W. Rivers, K. Yates, and B. Beechler. 2022. Consequences of parasitism in a threatened population of marbled murrelets on the Oregon Coast. Contributed oral presentation at the annual Boehringer Ingelheim National Veterinary Scholars Symposium, St. Paul, MN. August 5, 2022.

[§]Valente, J. J., S. K. Nelson, J. Dachenhaus⁺, E. Woodis⁺, J. A. Bailey Guerrero⁺, D. D. Roby, M. G. Betts, and J. W. Rivers. Estimating the detectability of breeding behaviors at known Marbled Murrelet (*Brachyramphus marmoratus*) nest sites. Contributed oral

presentation at the annual meeting of the Pacific Seabirds Group <virtual>. February 25, 2022.

⁺Woodis, E. W., J. J. Valente[§], S. K. Nelson, D. D. Roby, M. G. Betts, J. C. Dachenhaus⁺, J. A. Bailey Guerrero⁺, and J. W. Rivers. 2022. An assessment of factors that influence nest success of the Marbled Murrelet (*Brachyramphus marmoratus*). Contributed oral presentation at the annual meeting of the Pacific Seabird Group <virtual>. February 24, 2022.

⁺Dachenhaus, J. C., S. K. Nelson, D. D. Roby, M. G. Betts, E. W. Woodis, J. A. Bailey Guerrero⁺, J. J. Valente[§], L. J. Adrean⁺, and J. W. Rivers. 2022. Chick provisioning rates and nesting success of the Marbled Murrelet (*Brachyramphus marmoratus*). Contributed oral presentation at the annual meeting of the Pacific Seabird Group <virtual>. February 24, 2022.

[§]Valente, J. J., S. K. Nelson, J. W. Rivers, D. D. Roby, and M. G. Betts. Experimental evidence that social information affects habitat selection in Marbled Murrelets. Contributed oral presentation at the annual meeting of the Pacific Seabird Group <virtual>. February 26, 2021.

⁺Adrean, L. J., J. J. Valente[§], J. B. Guerrero⁺, S. K. Nelson, D. D. Roby, E. W. Woodis⁺, M. G. Betts, and J. W. Rivers. Evaluating the influence of fluctuating ocean conditions on foraging ecology and breeding activity of a threatened seabird. Contributed oral presentation at the annual meeting of the Pacific Seabird Group <virtual>. February 25, 2021.

Betts, M. G., J. M. Northrup, J. A. Bailey Guerrero, L. J. Adrean⁺, S. K. Nelson, J. L. Fisher, B. D. Gerber, M.-S. Garcia-Heras[§], Z. Yang, D. D. Roby, and J. W. Rivers. Squeezed by a habitat split: warm ocean conditions and old-forest loss interact to reduce long-term occupancy of the threatened Marbled Murrelet. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Portland, OR. February 14, 2020.

Fountain, E. D., R. T. Golightly, J. W. Rivers, S. K. Nelson, M. G. Betts, D. D. Roby, and M. Z. Peery. Harnessing the power of next-generation sequencing to characterize the diet of Marbled Murrelets (*Brachyramphus marmoratus*). Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Portland, OR. February 14, 2020.

[§]Garcia-Heras, M.-S., L. Adrean⁺, J. A. Bailey Guerrero, S. K. Nelson, D. D. Roby, M. G. Betts, J. C. Dachenhaus⁺, E. W. Woodis⁺, and J. W. Rivers. Spatio-temporal variation in marine space use of the endangered Marbled Murrelet (*Brachyramphus marmoratus*) in Oregon. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Portland, OR. February 14, 2020.

[†]Dachenhaus, J. C., L. J. Adrean[†], S. K. Nelson, D. D. Roby, M. G. Betts, E. Woodis[†], J. A. Bailey Guerrero, and J. W. Rivers. Use of video cameras to quantify chick provisioning rates in the Marbled Murrelet (*Brachyramphus marmoratus*). Poster presentation at the annual meeting of the Pacific Seabird Group, Portland, OR. February 13, 2020.

[†]Woodis, E. W., M. E. Hunsicker, Y. Gong, S. K. Nelson, D. D. Roby, M. G. Betts, J. C. Dachenhaus[†], L. J. Adrean[†], J. A. Bailey Guerrero, and J. W. Rivers. Using stable isotope analysis to document the effects of warming oceans on diet of the Marbled Murrelet (*Brachyramphus marmoratus*). Poster presentation at the annual meeting of the Pacific Seabird Group, Portland, OR. February 13, 2020.

[§]Garcia-Heras, M.-S., L. J. Adrean[†], M. J. Stuber, J. Dachenhaus[†], and J. W. Rivers. Bald Eagles and seabirds: new evidence reveals predation events on an endangered alcid, the Marbled Murrelet (*Brachyramphus marmoratus*), and other species along the central Oregon Coast. Poster presentation at the annual meeting of the Pacific Seabird Group, Portland, OR. February 13, 2020.

[§]Garcia-Heras, M.-S., L. Adrean[†], J. A. Bailey Guerrero, S. K. Nelson, D. D. Roby, M. G. Betts, J. Dachenhaus[†], E. Woodis[†], and J. W. Rivers. Spatial and temporal variation in marine space use of Marbled Murrelet (*Brachyramphus marmoratus*) along the Oregon coast. Contributed oral presentation at the annual meeting of the Oregon chapter of The Wildlife Society, Eugene, OR. February 5, 2020.

[†]Dachenhaus, J. C., L. J. Adrean[†], S. K. Nelson, D. D. Roby, M. G. Betts, E. Woodis[†], J. A. Bailey Guerrero, and J. W. Rivers. Use of video cameras to quantify chick provisioning rates in the Marbled Murrelet (*Brachyramphus marmoratus*). Poster presentation at the annual meeting of the Oregon chapter of The Wildlife Society, Eugene, OR. February 5, 2020.

[†]Woodis, E. W., M. E. Hunsicker, Y. Gong, S. K. Nelson, D. D. Roby, M. G. Betts, J. C. Dachenhaus[†], L. J. Adrean[†], J. A. Bailey Guerrero, and J. W. Rivers. Using stable isotope analysis to document the effects of warming oceans on diet of the Marbled Murrelet (*Brachyramphus marmoratus*). Poster presentation at the annual meeting of the Oregon chapter of The Wildlife Society, Eugene, OR. February 5, 2020.

[§]Garcia-Heras, M.-S., L. J. Adrean[†], M. J. Stuber, J. Dachenhaus[†], and J. W. Rivers. Bald Eagles and seabirds: new evidence reveals predation events on an endangered alcid, the Marbled Murrelet (*Brachyramphus marmoratus*), and other species along the central Oregon Coast. Poster presentation at the annual meeting of the Raptor Research Foundation, Ft. Collins, CO. November 7, 2019.

Rivers, J. W. An overview and introduction to the forage fish workshop. Invited oral presentation at the Forage Fish Workshop: Connecting the Land and Sea, Newport, OR. October 10, 2019.

[§]Garcia-Heras, M.-S., L. J. Adrean⁺, S. K. Nelson, D. D. Roby, M. G. Betts, and J. W. Rivers. Breeding season movements and marine habitat use by the Marbled Murrelet (*Brachyramphus marmoratus*) in Oregon. Invited oral presentation at the annual meeting of the American Ornithological Society, Anchorage, Alaska. June 28, 2019.

Rivers, J. W., L. J. Adrean⁺, S. K. Nelson, M.-S. Garcia-Heras[§], D. D. Roby, and M. G. Betts. Factors associated with Marbled Murrelet (*Brachyramphus marmoratus*) nesting success in western Oregon. Invited oral presentation at the annual meeting of the American Ornithological Society, Anchorage, Alaska. June 28, 2019.

[§]Garcia-Heras, M.-S., L. J. Adrean⁺, S. K. Nelson, D. D. Roby, M. G. Betts, and J. W. Rivers. Breeding season movements and marine habitat use by the Marbled Murrelet (*Brachyramphus marmoratus*) in Oregon. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Kauai, HI. March 2, 2019.

⁺Adrean, L. J., S. K. Nelson, M.-S. Garcia-Heras[§], D. D. Roby, M. G. Betts, and J. W. Rivers. Factors associated with Marbled Murrelet (*Brachyramphus marmoratus*) nesting success in western Oregon. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Kauai, HI. March 1, 2019

⁺Horton, C. A., L. J. Adrean⁺, S. K. Nelson, D. D. Roby, M. G. Betts, and J. W. Rivers. Anomalous ocean conditions coincide with a lack of nesting activity in Marbled Murrelets in Oregon. Poster presentation at the annual meeting of the American Ornithological Society, Tucson, Arizona. April 12, 2018

⁺Adrean, L. J., S. K. Nelson, C. A. Horton⁺, D. D. Roby, M. G. Betts, and J. W. Rivers. Radio-tagging reveals unprecedented breeding season movements of Marbled Murrelets. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, La Paz, Mexico. February 24, 2018.

⁺Horton, C. A., L. J. Adrean⁺, S. K. Nelson, D. D. Roby, M. G. Betts, and J. W. Rivers. Anomalous ocean conditions coincide with a lack of nesting activity in Marbled Murrelets in Oregon. Poster presentation at the annual meeting of the Pacific Seabird Group, La Paz, Mexico. February 22, 2018.

Nelson, S. K., J. M. Northrup[§], J. W. Rivers, D. D. Roby, and M. G. Betts. Effects of climate, habitat, and predators on Marbled Murrelet distribution in Oregon. Poster presentation at the annual meeting of the Pacific Seabird Group, La Paz, Mexico. February 22, 2018.

Strong, C. S., R. T. Golightly, S. K. Nelson, C. A. Horton⁺, L. J. Adrean⁺, and J. W. Rivers. Bailing on the California Current: Marbled Murrelet and other seabird response to unusual conditions in Oregon and Northern California. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, La Paz, Mexico. February 22, 2018.

Rivers, J. W., S. K. Nelson, L. J. Adrean⁺, C. A. Horton⁺, D. D. Roby, and M. G. Betts. An update on the Oregon Marbled Murrelet Project: unexpected results characterize the 2017 breeding season. Contributed oral presentation at the annual meeting of the Oregon Chapter of The Wildlife Society, Portland, OR. February 15, 2018.

Rivers, J. W., L. Adrean⁺, M. Pickett, B. Taggart, S. K. Nelson, D. D. Roby, and M. G. Betts. Testing whether unmanned aerial vehicles can be used to locate cryptic nests of the Marbled Murrelet. Contributed oral presentation at the annual meeting of the American Ornithological Society, East Lansing, MI. August 3, 2017.

Pickett, M. H., B. K. Taggart, J. W. Rivers, L. J. Adrean⁺, and S. K. Nelson. Utilizing UAS to locate nesting seabirds within the canopy of mature forests. Contributed oral presentation at the annual meeting of the Association for Unmanned Vehicle Systems International, Dallas, TX. May 10, 2017.

[§]Northrup, J. M., J. W. Rivers, S. K. Nelson, D. D. Roby, L. J. Adrean⁺, and M. G. Betts. Spatiotemporal patterns of corvid distribution and abundance in areas occupied by Marbled Murrelets. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Tacoma, WA. February 25, 2017.

Nelson, S. K., J. M. Northrup[§], D. D. Roby, M. G. Betts, L. J. Adrean⁺, and J. W. Rivers. Evaluating space use and reproductive success of the threatened Marbled Murrelet in western Oregon. Poster presentation at the annual meeting of the Pacific Seabird Group, Tacoma, WA. February 23, 2017.

⁺Adrean, L. J., M. Pickett, B. Taggart, S. K. Nelson, D. D. Roby, M. G. Betts and J. W. Rivers. Testing whether unmanned aerial vehicles can be used to locate cryptic nests of the Marbled Murrelet. Contributed oral presentation at the annual meeting of the Pacific Seabird Group, Tacoma, WA. February 23, 2017.

Rivers, J. W., L. J. Adrean⁺, M. Pickett, B. Taggart, S. K. Nelson, D. D. Roby, and M. G. Betts. Testing whether unmanned aerial vehicles can be used to locate cryptic nests of the Marbled Murrelet. Contributed oral presentation at the annual meeting of the Oregon Chapter of The Wildlife Society, Pendleton, OR. February 9, 2017.

[§]Northrup, J. M., J. W. Rivers, S. K. Nelson, D. D. Roby, L. J. Adrean⁺, and M. G. Betts. Spatiotemporal patterns of corvid distribution and abundance in areas occupied by Marbled Murrelets. Contributed oral presentation at the annual meeting of the Oregon Chapter of The Wildlife Society, Pendleton, OR. February 8, 2017.

⁺Adrean, L. J., S. K. Nelson, J. M. Northrup[§], D. D. Roby, M. G. Betts, and J. W. Rivers. Evaluating space use and reproductive success of the threatened Marbled Murrelet in western Oregon. Presentation at the annual meeting of the Oregon Chapter of The Wildlife Society, Pendleton, OR. February 8, 2017.

Rivers, J. W., M. G. Betts, S. K. Nelson, and D. D. Roby. Predictors of space use and reproductive success in the Marbled Murrelet. Invited oral presentation at the annual West Coast Regional Meeting of The National Council for Air and Stream Improvement, Inc., Vancouver, WA. September 26, 2016.

Rivers, J. W., J. M. Northrup[§], M. G. Betts, S. K. Nelson, and D. D. Roby. Evaluating space use and reproductive success of the threatened Marbled Murrelet in western Oregon. Poster presentation at the 6th North American Ornithological Conference, Washington, D.C. August 17, 2016.

INVITED ACADEMIC SEMINARS

Stay at Home Lecture Series Webinar, Oregon State University (April 16, 2020)
Hatfield Marine Science Center, Oregon State University (November 7, 2019)
Eugene Garden Club, Eugene, Oregon (June 12, 2019)
Portland Audubon Society, Portland, Oregon (June 6, 2019)
Oregon State University, Department of Fisheries and Wildlife (November 1, 2018)
Corvallis Science Pub, Corvallis, Oregon (March 12, 2018)
Drone Week, Oregon State University (June 29, 2017)
Oregon Audubon Society Council, Corvallis, Oregon (November 12, 2016)
Community Science Project, Portland Audubon Society, Yachats, Oregon (10 dates in July 2016-2024)

INVITED PRESENTATIONS TO EXTERNAL STAKEHOLDERS

Bureau of Land Management <virtual> (March 11, 2025)
National Council for Air and Stream Improvement Forestry Program <virtual> (September 16, 2021)
Institute for Working Forest Landscapes, OSU College of Forestry, Corvallis, OR (October 2, 2021)
Bureau of Land Management <virtual> (March 9, 2021)
Oregon Board of Forestry, Salem, Oregon (March 4, 2020)
Oregon Division of State Lands Stakeholder group, Corvallis, OR (November 21, 2019)
National Council for Air and Stream Improvement Forestry Program <virtual> (October 15, 2019)
Institute for Working Forest Landscapes, OSU College of Forestry, Corvallis, OR (May 3, 2019)
Oregon Board of Forestry, Salem, OR (March 6, 2019)
Olympic Resources Annual Meeting, Grande Ronde, OR (March 19, 2019)
National Council for Air and Stream Improvement, Vancouver, WA (November 6, 2018)
Oregon Forest Industries and Council, Salem, OR (August 30, 2018)
Society for American Foresters, Mary's Peak Chapter, Corvallis, Oregon (March 16, 2018)
Oregon Department of Fish and Wildlife Commission, Portland, OR (February 9, 2018)

NOAA, NW Fisheries Science Center, Newport, OR (October 4, 2017)
Oregon Forest Industries and Council, Salem, OR (September 20, 2017)
Oregon Forest Industries and Council, Salem, OR (March 14, 2017)

MEDIA COVERAGE

Living Bird - [Sounds like home: experimenting with audio to help Marbled Murrelets find prime habitat](#). 2022.

The Revelator - [A rare 'bird of two worlds' faces an uncertain future](#). 2021.

Hakai Magazine - [Scientists Are Tricking Birds Into Finding New Homes](#); see also [phys.org](#), [KTVZ.com](#). 2021.

Oregon Field Guide - [Marbled Murrelets](#); see also [opb.org](#). 2021.

Oregonian - [Oregon Seabird Facing Dual Threats as Forests Burn and Oceans Warm](#). 2020.

Proteus - [Solve for 'x': The Life Variables of a Forest-nesting Seabird](#). 2020.

Audubon Magazine - [From Sea to Tree, Scientists Are Tracking Marbled Murrelets With Rising Precision](#). 2018.

Terra Magazine – [Flying Under the Radar](#). 2018.

Hakai Magazine – [The Unsolved Mystery of Marbled Murrelet](#). 2018.

Terra Magazine – [Home from the Sea](#) . 2017.

OSU Daily Barometer – [Seabird Research Creates Opportunities for Ecosystem Understanding](#). 2017.

KLCC, Eugene, OR – [OSU Researchers Study Elusive Threatened Seabird](#). 2017.

The World – [Marbled Murrelet Study Along the Oregon Coast](#). 2017.

YouTube - [Tracking the Oregon Marbled Murrelet with FLIR Thermal](#). 2017.

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