



# THE PINCHOT LETTER

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## Conservation Potential within Forest Service Roadless Areas: Applying Science and Technology to the Conservation Debate

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Recently, the Pinchot Institute collaborated with World Wildlife Fund and NatureServe to analyze the potential contribution U.S. Forest Service (USFS) roadless areas make to the conservation of biodiversity. For years, the value of these areas has been hotly debated within the context of forest policy. Scores of interest groups have long argued for the full-protection of these parcels, while others have openly defended the right to utilize and access public lands for resource management and product extraction.

Through careful application of scientific data and Geographic Information System (GIS) technology, we found that areas proposed for protection under the Final Roadless Conservation Rule (66 FR 3244) represent some of the nation's most important reservoirs of imperiled biological diversity and as such, could have lasting and far-reaching effects on biodiversity conservation. These results were recently published within *Conservation Ecology*<sup>1</sup>, a peer-reviewed journal of The Resilience Alliance<sup>2</sup> that integrates science and fundamental policy research.

### BACKGROUND OF THE STUDY

In January 2001, the Clinton administration promulgated the

Roadless Area Conservation Rule, which stated that 58.5 million acres of inventoried roadless areas (IRAs) within the U.S. National Forest System would remain roadless and protected from timber extraction.<sup>3</sup> Because the lands currently managed by the U.S. Forest Service contain



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more than 80% of our nation's mammal and reptile species, and more than 90% of our nation's bird, amphibian, and fish species, it was hypothesized that additional protection within these forested regions may have profound impacts on biodiversity conservation. Considering this assumption, we looked at three critical questions associated with IRAs:

Is there a high concordance between inventoried roadless

areas and ecoregions with high global biodiversity value?

Do inventoried roadless areas overlap with critical habitat for threatened, endangered, or imperiled species?

Is there potential for inventoried roadless areas to assist in the conservation of wide-ranging species, such as the grizzly bear (*Ursos arctos*)?

### METHODS OF ANALYSIS

Using GIS technology, we combined maps of IRAs with biologically ranked ecoregions to produce a series of maps that highlight the amount and distribution of roadless areas

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*Leadership in Forest Conservation Thought, Policy and Action*



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within the most biologically important U.S. ecoregions.<sup>4</sup> We then combined maps of IRAs with distribution maps of all threatened and endangered species, as defined by the Endangered Species Act, and other globally imperiled species.<sup>5</sup> Lastly, we looked at the concordance of IRAs with grizzly bear recovery and habitat areas in Montana, Idaho, Washington, and Wyoming.<sup>6</sup>

## CONCLUSIONS

Based on these GIS analyses, we concluded that IRAs have the poten-

tial to provide important habitat in some of the nation's most biological diverse ecoregions, including areas in the Appalachian Mountains, Pacific Northwest, Alaska, and southern California. Perhaps more importantly we found that approximately 58% of all IRAs intersect with threatened and endangered species distributions, reflecting a 70% overlap in the east and 61% overlap in the west. This result underscores the potential of IRAs to meet the requirements of the Endangered Species Act, while providing additional ecosystem services and biological conservation. Our

analysis also showed a strong concordance with grizzly bear recovery zones and habitat range.

Though represented largely as statistical findings, we were careful to highlight the significance of these results on future policies and legislation, particularly those that pertain to the protection of species and development within protected areas. According to our results, strict protection of existing IRAs from more traditional multiple-use designations

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## ABOUT THE PINCHOT INSTITUTE

Recognized as a leader in forest conservation thought, policy and action, the Pinchot Institute for Conservation was dedicated in 1963 by President John F. Kennedy at Grey Towers National Historic Landmark (Milford, PA)—home of conservation leader Gifford Pinchot. The Institute is an independent nonprofit organization that works collaboratively with all Americans nationwide—from federal and state policymakers to citizens in rural communities—to strengthen forest conservation by advancing sustainable forest management, developing conservation leaders, and providing science-based solutions to emerging natural resource issues. Further information about the Pinchot Institute's programs and activities can be found at [www.pinchot.org](http://www.pinchot.org).

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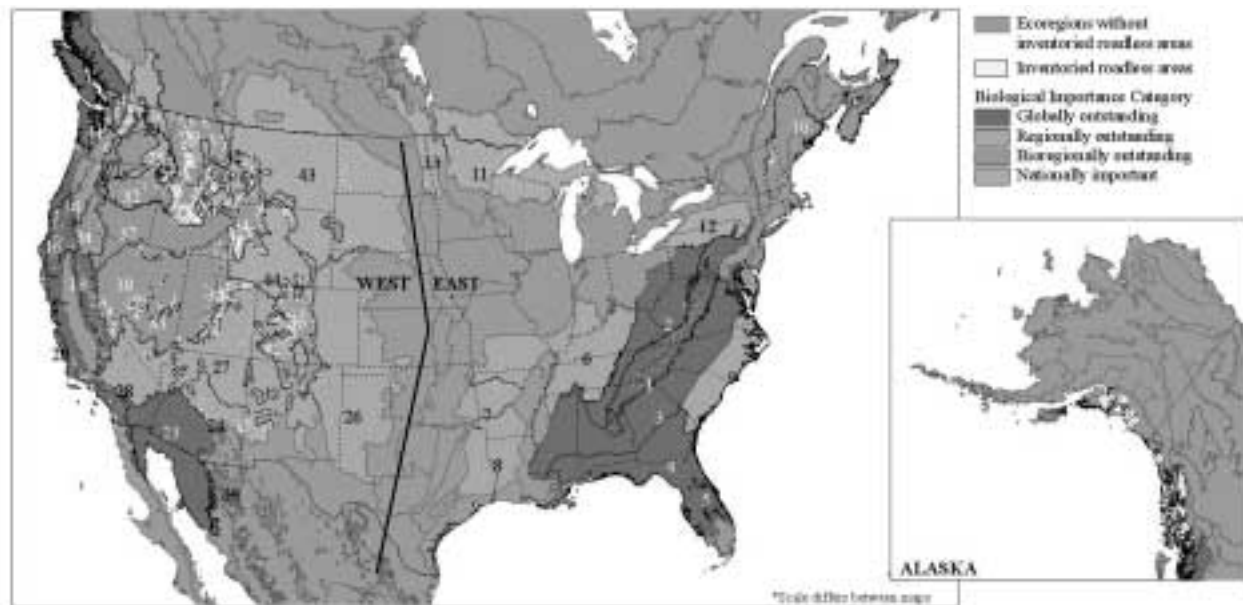
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|---|---|--|
| 1. Appalachian-Blue Ridge Forests           | 17. Northern California Coastal Forests       | 33. Great Basin Montane Forests                  |
| 2. Appalachian Mixed Mesophytic Forests     | 18. Sierra Nevada Forests                     | 34. South Central Rockies Forests                |
| 3. Southeastern Mixed Forests               | 19. Madren Sky Islands Montane Forests        | 35. Wasatch and Uinta Montane Forests            |
| 4. Southeastern Conifer Forests             | 20. California Interior Chaparral & Woodlands | 36. Colorado Rockies Forests                     |
| 5. Florida Sand Pine Scrub                  | 21. California Montane Chaparral & Woodlands  | 37. Snake-Columbia Shrub Steppe                  |
| 6. Central US Hardwood Forests              | 22. California Coastal Sage & Chaparral       | 38. Great Basin Shrub Steppe                     |
| 7. Ozark Mountain Forests                   | 23. Sonoran Desert                            | 39. Okanogan Forests                             |
| 8. Piney Woods Forests                      | 24. Arizona Mountains Forests                 | 40. Cascade Mountains Lowland Forests            |
| 9. Middle Atlantic Coastal Forests          | 25. Palouse Grasslands                        | 41. Puget Lowland Forests                        |
| 10. New England-Acadian Forests             | 26. Western Short Grasslands                  | 42. Montana Valley and Foothill Grasslands       |
| 11. Western Great Lakes Forests             | 27. Colorado Plateau Shrublands               | 43. Northwestern Mixed Grasslands                |
| 12. Allegheny Highlands Forests             | 28. Mojave Desert                             | 44. Wyoming Basin Shrub Steppe                   |
| 13. Northern Tall Grasslands                | 29. North Central Rockies Forests             | 45. Northern Pacific Coastal Forests             |
| 14. British Columbia Inland Coastal Forests | 30. Central and Southern Cascades Forests     | 46. Pacific Coastal Mountain Tundra & Ice Fields |
| 15. Central Pacific Coastal Forests         | 31. Eastern Cascades Forests                  |  |
| 16. Klamath-Siskiyou Forests                | 32. Blue Mountains Forests                    |  |

may enhance the Forest Service's ability to meet numerous biological objectives, particularly safe-guarding those species currently at-risk of endangerment or extinction.

The protection of IRAs may also contribute invaluable benchmarks to gauge ecological changes on managed federal lands and simultaneously increase the area of conservation reserves within the United States (from 4.8% to 8.5%). For all of these reasons, including concern for those species with only a few remaining populations, we stressed the importance of strict and permanent protection of IRAs—constituting what may represent a final, critical refugia for numerous endangered species.

*To learn more about this study and see full-color maps, please visit*

*[www.consecol.org/vol17/iss2/art5](http://www.consecol.org/vol17/iss2/art5) or contact Andrea Bedell Loucks at [andreabedell@pinchot.org](mailto:andreabedell@pinchot.org).*

## NOTES

1. Loucks, C., N. Brown, A. Loucks, and K. Cesario. 2003. USDA Forest Service Roadless Areas: Potential Biodiversity Conservation Reserves. *Conservation Ecology* 7(2): 5. [online] URL: [www.ecologyandsociety.org/vol7/iss2/art5](http://www.ecologyandsociety.org/vol7/iss2/art5).
2. A multidisciplinary, membership-based, research organization of scientists and practitioners who collaborate to explore the dynamics of complex, adaptive social-ecological systems to discover foundations for sustainability.
3. This acreage accounts for 31% of USFS landbase, and 2% of U.S. landbase.
4. As defined by Ricketts, T.H., E. Dinerstein, D. Olson, C. Loucks, W. Eichbaum, D. DellaSala, K. Kavanaugh,

P. Hedao, P. Hurley, K. Carney, R. Abell, and S. Walters. 1999. *Terrestrial Ecoregions of North America: a Conservation Assessment*. Island Press, Washington, DC, USA.

5. Threatened/endangered species location data provided by NatureServe.

6. Grizzly bear recovery zones data provided courtesy of the U.S. Fish and Wildlife Service and the University of Montana.

