INSTITUTE FOR NATURAL RESOURCES

January 2013

Strategic Plan 2013-2017

Institute for Natural Resources

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STRATEGIC PLAN 2013-2017

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Prepared by

THE INSTITUTE FOR NATURAL RESOURCES

Created by the Oregon Legislature through the 2001 Oregon Sustainability Act, the Institute for Natural Resources' mission is to provide access to integrated knowledge and information to inform natural resource decision making and develop solutions in the context of sustainability.

The Institute for Natural Resources is an Oregon University System institute located at Oregon State University and Portland State University.

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Photo by Miles Hemstrom

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STRATEGIC PLAN 2013-2017

Mission

Provide access to integrated knowledge and information to inform natural resource decision making and develop solutions in the context of sustainability.

INTRODUCTION

Created by the Oregon Legislature with the Oregon Sustainability Act of 2001, the Institute for Natural Resources (INR) is a cooperative enterprise bringing the scientific knowledge and expertise of the Oregon University System and other higher education institutions to bear on natural resource decision making. Designated as the lead university to administer INR, Oregon State University (OSU) established INR as a research institute within OSU to help decision makers identify and use relevant science in making policy choices. At INR's foundation is the land grant mission – building synergy and connections between research and practice, and effectively communicating knowledge and uncertainty to decision makers.

Much has been accomplished since the Oregon Legislature and OSU established INR (Appendix A). Needs, capabilities, and experiences over the last ten years, together with an eye on the future, have led to a broadening of our purpose, and the goals, objectives, and actions presented in this plan.

Our **vision** is that *people and organizations routinely use INR services and products to meet environmental, economic, and social challenges of this and future generations.*

Challenges and Opportunities

Natural resource issues are increasingly acknowledged as complex policy and management problems that are not just about the resource itself or just the scientific understanding of it. Decision making is not a straightforward process. It requires an intricate mix of publicly-engaged problem definition, integrating scientific knowledge with social and policy conditions, negotiating uncertainty, iterative policy development, adaptive planning, and attentive monitoring.

Making decisions about these issues are confounded by many challenges, some of which reinforce traditional boundaries and reduce our ability to pursue new and novel solutions. The overarching challenge and opportunity looking forward has been described as the 9 Billion Challenge (sidebar 1). Meeting that challenge creates enormous opportunities for impact and requires an interdisciplinary, holistic view of our environments (sidebar 2). Other challenges and opportunities that INR aims to address, include:

GRAND SOCIETAL NATURAL RESOURCE CHALLENGE AND OPPORTUNITY OF THE 21ST CENTURY

Within the next four decades, the human populations of Oregon, America and the planet are expected to grow by 30%: to 9 billion globally, 500 million nationally and 5 million in Oregon. These people will likely all want to "live higher on the food chain." Yet, there will be no more land, water, or space to accommodate future human needs and wants. Preparing for this future with improved outcomes for social justice, while keeping the planet's environments and natural resources diverse, productive and resilient, is the grand and enduring natural resource challenge and opportunity of our times.

Uncertainty and Risk. Our ability to respond to rapid environmental, economic or social change is a complicated endeavor. Decision makers want unambiguous and defensible information to inform achievable, affordable, and socially acceptable decisions; and they want to know that the course and outcomes of their actions are fail-safe. Yet, the nature of complex systems is inherently uncertain and surprise is inevitable. The challenge is making sense of uncertainty and risk, and developing flexible mechanisms that are proficiently responsive.

Change. The earth is in a continuous state of change. What people do and don't do constantly modifies the characteristics of the environment and natural resources, which directly impact human health, safety, and welfare. As researchers advance their approaches to and methods of understanding the dynamic nature of earth systems, decision makers and citizens need to be aware of the potential consequences of our individual and collective actions and inactions and adapt as needed.

Information Overload: Turning Data and Information into Knowledge. Rapidly evolving information technologies are making vast amounts of data and information much easier to access while more difficult to evaluate. People want to easily find and understand "the best available" scientific information and data; however, the challenge is to refocus efforts from the search for the best available science to a pragmatic approach of the "best use of available science and information" to answer targeted questions as they arise. This requires timely, objective synthesis of research results for issues of public concern and translating research results into language understandable to non-specialists.

Integration. Natural resource issues are complex and involve a web of factual, political, and institutional issues. When approached from a single perspective complex problems are difficult to understand and impossible to resolve. Integrating science, technology, policy and public understanding, is essential for effective problem solving. While expertise and disciplinary depth are crucial to understanding the nuances of these issues, clarity and resolution call for synthesis

and the processes to facilitate synthesis. They increasingly also call for reintegrating science with humanities.

Relevance. Requests for scientific information – to inform and evaluate management and policy choices – range from general inquiries to complex efforts that cover long time periods and large landscapes. While academic research is generally motivated by researchers' questions of interest, natural resource-related policy research is driven by planning and management issues. Applying academic research to natural resource management, and making natural resource management questions pertinent to academic research, requires an iterative process of defining problems, understanding user needs, identifying knowledge gaps, and being open to discovery in the face of uncertainty.

SERVICES AND PRODUCTS

INR benefits both science and decision by bringing multiple parties together to address complex natural resource issues, interpreting and making accessible complex scientific knowledge, collating information and evidence from a wide variety of disciplinary sources, providing organizational support to interdisciplinary research, and bridging the gap between scientific and policy cultures. We provide value through four integrated service areas.

Information and Data Development, Management, and Access

We develop, integrate, and improve access to comprehensive data, information, tools, methods, and expertise to support natural resource management decision making, research, and education in Oregon and the West. Our core functions include:

- Natural resource dataset compilation and integration
- Access to comprehensive information related to natural resources
- Resource mapping
- Digital library enhancements
- Vegetation and landscape modeling
- Creation of collaborative workspaces

Research-Practice (Science-Policy) Integration

We work to *anticipate* and *clarify* natural resource issues of concern – helping decision makers avoid operating in crisis mode. We develop, test, and implement new methods and tools; improve on existing alternatives by looking at issues from different angles; and translate and synthesize

A CONTEMPORARY LAND AND CULTURAL ETHIC

Earth's living and non-living elements and processes are interconnected through time and space.

The environmental and social conditions of any place on Earth at any time reflect the history of those interconnections, including especially the results of human actions for survival, growth, prosperity and social status.

The capacity of human actions to impact Earth's environments, natural resources, and fellow humans creates a responsibility for people to be cognizant of the effects of their habitation and behaviors on current and future environmental, resource, and social conditions on this and for generations yet to come.

This responsibility includes acting in accord with awareness and understanding.

research-based knowledge into practical and useful information. Our core capacity includes:

- Applied policy research and synthesis
- Evidence-based and systematic science reviews
- Convening issue-based science-policy (or research-practice) dialogues, forums, meetings, symposia and conferences
- Resource assessments and analyses
- Institutional analysis
- Program evaluation
- Indicator development

Research Coordination and Project Management

We help facilitate and/or develop opportunities for interdisciplinary research by supporting teams of investigators to communicate and coordinate their research, training and educational activities across disciplinary, organizational, and geographic boundaries. INR seeks to find opportunities to cultivate new collaborations, and address topics that are interdisciplinary and are of interest across multiple agencies. We work to advance fresh ideas for implementing new networking strategies, collaborative workspaces, and developing a consistent channel for data management.

- Facilitation of large grant proposal development
- Interdisciplinary research and project management
- Data management
- Evaluation

INR PRODUCTS

- Oregon Biodiversity Information Center data, databases, maps, resource assessments
- Oregon Explorer suite of portals, tools, and interactive maps
- Collaborative workspaces: Ecosystem Commons and iMapInvasives
- Reports, syntheses, and assessments
- Integrated Ecological Framework
- Integrated Landscape Assessment Program

Experiential Learning and Leadership Development

We support and build the capacity of students enrolled in a graduate program to become an integral part of fulfilling INR's mission through research, science delivery, and writing projects focusing on natural resource management, policy, and data issues. We encourage and help students take the knowledge, skills and abilities developed at INR and apply them with a partnering agency or organization.

OUR PLAN

Approach to Mission and Challenges

We approach our mission and the challenges and opportunities with the following values and principles in mind:

Integrity and Objectivity. We assure impartiality, transparency, and objectivity to deliver policy-

neutral research and information products.

Partnerships and Collaboration. We engage to accomplish reciprocal benefits with a broad range of talents and skills available from research scientists, public officials, non-governmental organizations, the private sector, and interested citizens to stimulate innovation and positive change.

Relevance and Usability. We provide usable and relevant research products, data, tools, information, and services so research findings and recommendations are understandable, usable in meaningful ways, and lead to better decisions.

Access. We commit to open access to information and to making data and information available through open source tools.

Efficiency. We increase efficiency by taking advantage of ongoing research, data collection, and programs to address issues in the most cost-effective way, allowing us to do more with limited financial resources.

Place and Communities. We believe that people, culture, geography, and a sense of place matter in natural resources decision making.

Goals

At the center of this strategic plan are the goals and objectives we will pursue to address challenges, create opportunities, and fulfill our purpose and mission. Our goals directly link to several key documents and initiatives, including the research agendas of Oregon State University, Portland State University, and the University of Oregon; the 10-year Plan for Oregon; and Western Governors' Association initiatives, among others. Congruent with these documents and initiatives our 2013-2017 plan focuses on services and products for informed management and decision making, including enhancing the usefulness and accessibility of data and tools to support decisions.

Our 2013-2017 strategic goals are:

- **Goal 1**: Increase the ability of others to efficiently and effectively deliver environmental and resource outcomes.
- **Goal 2**: Extend the reach of knowledge and information to inform natural resource decision making.
- **Goal 3**: Enhance the relevance and delivery of INR's distinctive suite of services and products.

Our operational goal (Appendix B) is:

- **Goal 4**: Strengthen INR's capacity and effectiveness.

The goals, objectives, and actions are based on a series of meetings and conversations with INR staff, the INR Board of Advisors, and stakeholders who have been engaged with INR over the years. In the current state fiscal situation, additional investment of General Funds is unlikely, and INR must be proactive in pursuing alternative revenue streams. Identifying possible alternative resources is an ongoing priority.

This plan is a living document and it is anticipated that the objectives and actions will evolve over the course of the plan. The strategic plan will be periodically reviewed for relevance, and action plans will be developed annually.

Goal 1: Increase the ability of others to efficiently and effectively deliver environmental and resource outcomes.

Objectives and Actions

1. **Engage communities of place, interest, and practice in identifying major upcoming challenges and developing solutions.**
    a. Convene roundtable discussions centered on INR policy research products.
    b. Serve in ex officio capacity on Governor's Natural Resources Cabinet, the Regional Natural Resources and Environmental Forum, and other relevant multi-agency groups to stay abreast of critical issues in the state and region, and negotiate contracts to serve Cabinet agency's policy analysis needs.
    c. Have INR staff serve as agency liaisons.
    d. Conduct institutional and policy analyses that focus on critical issues, identify opportunities and constraints, inform potential actions and facilitate negotiation for more effective and efficient natural resource policy and management.

2. **Continue to enhance and maintain an easy-to-use, up-to-date web interface that others can use to access and interact with natural resource information and data.**
    a. Continue and nurture our partnership with the Oregon State University Libraries through the Oregon Explorer, and work with them to increase our collaborations with the Portland State University and University of Oregon libraries.
    b. Enhance our collaborations with the Department of Administrative Services – Geospatial Enterprise Office and the GIS and information management sections of other state and federal agencies.
    c. Continue to develop customized tools that advance natural resources planning and decision making.
    d. Encourage and elevate access to tools developed by university faculty, and state and federal agency partners through the Oregon Explorer.

USERS AND BENEFICIARIES

- State, federal, local, regional and tribal decision-makers and officials
- Conservation groups
- Landowners
- Industry
- Collaborative groups
- Communities
- Interdisciplinary science teams
- University faculty and administrators
- University students
- K-12 teachers and students
- Media

e. Explore opportunities to work with Oregon Watershed Enhancement Board and others to develop Oregon Explorer portals for all of the basins in Oregon.

3. **Support biodiversity conservation through data collection, access and dissemination about the identification and occurrence of plant, animal, and ecological community resources of Oregon.**
    a. Develop tools and partnerships to expand participation in developing and maintaining data and decision support tools that promote long-term biodiversity planning and short-term biodiversity conservation.
    b. Explore opportunities to support and work with the Oregon Department of Fish and Wildlife, Defenders of Wildlife and others to integrate the Oregon Conservation Strategy and Natural Areas Plan to create an Oregon biodiversity conservation plan.
    c. Work with NatureServe and the U.S. Geological Survey to build the national network of biological information providers and standards for such information.

4. **Advocate for and facilitate efficiencies in data collection, data sharing, monitoring and reporting of long-term natural resource and the environment trends and indicators.**
    a. Work with the Governor's Office and other state agencies to promote and support enterprise monitoring.
    b. Develop customized tools to support specific decisions and information needs, while seeking further collaborations to broaden the applicability and use of the tools by others.
    c. Partner with state agencies to expand and keep current the shared, integrated, web-accessible digital library – using the Oregon Explorer framework and infrastructure – that is supported by state funds.
    d. Offer to serve a role to better integrate federal inventory efforts – such as the Pacific Northwest Aquatic Monitoring Partnership (PNAMP), the Forest Inventory and Analysis Program (FIA), the Natural Resources Inventory (NRI) – with the other natural resource trends and indicator projects, to provide greater efficiencies.

5. **Advocate for and collaborate with partners to create a dynamic, continually updated web-based "State of the Oregon Environment" reporting tool.**
    a. Collaborate with state agencies to integrate statewide adopted natural resource plans.
    b. Work with the Governor's Natural Resources Office and state agencies to create a proposal for a dynamic state of the environment report process.
    c. Advocate for and offer to host an efficient process to select cross-cutting, multi-agency benchmarks and explore an efficient way to ensure the data collection supports.
    d. Offer to archive existing information about current natural resource indicators from the Oregon Benchmarks.
    e. Assure local web indicator projects such as the Greater Portland Pulse are integrated with statewide and regional systems.

f. Continue to work with regional federal agencies and neighboring states to build a regional and national information system(s).

Goal 2: Extend the reach of knowledge and information to inform natural resource decision making.

Objectives and Actions

1. **Become more integrated into the Oregon University System, their research, and their outreach and engagement activities.**
    a. Create and actively work with an INR academic research advisory group.
    b. Cultivate stronger links within OSU (the OSU Centers and Institutes natural resource cluster, the School of Public Policy, Outreach and Engagement); PSU (Institute for Sustainable Environment and the School of the Environment); and UO (Institute for Sustainable Environment, School of Environmental Studies; and the Public Policy, Planning, and Management Program); the Research Offices of each university and the equivalent Research Development Directors.
    c. Demonstrate and promote the relevance of INR services and products to Oregon University System faculty and administrators.
    d. Facilitate the creation of faculty interdisciplinary teams on major, long-term competitive grant proposals.
    e. Develop and work with interdisciplinary research teams to investigate critical issues identified through forums and other information sources.

2. **Increase the visibility, usefulness, and impact of university research products on natural resource decision making and policy making.**
    a. Strengthen communication with state, federal, non-governmental, private, tribal, and other groups by working with them to understand their issues and needs, and INR's services and products.
    b. Maintain strong connections with academic and science organizations so our work is innovative and up-to-date.
    c. Foster support from agencies to promote ideas, discoveries, knowledge, and tools that address multi-agency natural resource issues (i.e., integrating state conservation strategies and plans).

3. **Facilitate university-agency interactions that promote the appropriate use of available science, technology, and information in natural resource decision-making.**
    a. Convene stakeholder-driven forums on critical issues already facing or emerging in Oregon to link scientific research, interested citizens, and public policymakers using intensive, short-term focus efforts wherever feasible.
    b. Determine how the Cooperative Ecosystems Studies Unit (CESU), which aims to better link member universities and federal agencies, can be better used as a vehicle to promote university-agency interactions.

4. **Provide technical and managerial services to agencies and teams working on integrated, complex problems, projects or programs.**
    a. Market technical and management services based on experience to-date.

5. **Facilitate experiential student learning.**
    a. Work with agencies, NGOs, private sector, and university faculty to identify an evolving portfolio of experiential learning opportunities for graduate students.
    b. Link to existing internship programs throughout the Oregon University System.
    c. Develop a more formalized internship process for OUS graduate students in which both the intern and the supporting organization mutually benefit.

Goal 3: Enhance the relevance and delivery of a distinctive suite of services and products.

Objectives and Actions

1. **Conduct a needs assessment with stakeholders about INR services and products.**
2. **Fully integrate INR products into the Oregon Explorer.**
    a. Work with OSU Libraries to promote and broaden the use of Oregon Explorer through community college and county libraries, K-12, and university-level classes.
    b. Collaborate with OSU Extension to enhance and extend the use of Oregon Explorer through their place-based community networks.

3. **Provide broader access to and applicability of client- and grant-based research and information products.**
    a. Refine and institutionalize a review and publication process for all INR publications.
    b. Repurpose existing research and information products by producing concise research and information briefs/whitepapers from that work
    c. Create a credible portfolio policy and science briefs, research synthesis and state of practice whitepapers, and policy and science reviews that are web-based, dynamic, and archived.
    d. Work with INR interns and student workers, as well as specific university classes to produce and deliver these briefs/whitepapers.

RESULTS

As a result of fulfilling these goals:

- **Result 1**: Decision makers will have access to the information, data, tools, and expertise about cross-cutting natural resource and societal challenges and their decisions will be guided by up-to-date, integrated knowledge and information.
- **Result 2:** INR's network of researchers and scientists across the Oregon University System will be in a unique position to work with decision makers and others to gain an accurate understanding of the underlying science, its meaning, and its limitations.
- **Result 3:** INR's synthesis, analysis, and applied research will inform key agency and cross-agency decisions.
- **Result 4:** INR is recognized as a leader in developing innovative and pragmatic solutions for natural resource challenges through collaborative applied research and information delivery.

EVALUATION

Evaluating INR will involve both an internal and an external process, overseen by the INR Director and a sub-committee of the INR Advisory Board. An evaluation plan will be completed within first 12 months of the strategic plan.

The evaluation plan will emphasize a continuous review process during the life of the strategic plan. This process will include generating data from INR faculty and stakeholders, and reporting recommendations concerning progress toward achieving INR's goals. Performance reports will be given to the INR Advisory Board and Governor's Office on an annual basis. A programmatic review will occur during the fifth year of the strategic plan (2017) and will help shape the 2018-2022 strategic planning process. The evaluation plan will include developing instruments and methodology to determine both the degree and effectiveness of collaborations that achieve INR's primary goals.

Some of the initial performance measures might include, but are not limited to:

Quality

- **Timeliness**: INR's ability to provide support to clients and users within a timeframe consistent with the expectations of the groups engaging with the INR.
- **Client and user satisfaction**: The extent to which clients and users are satisfied with INR's processes, services, products, and outcomes.
- **Collaborations**: The usefulness of INR's processes for engaging partners, collaborators and other stakeholders, and incorporating input.

Outputs

- **Quantity of products**: The quantity of relevant, credible, and useful products produced.

- **Use of products:** (1) The extent to which available INR products are believed by partners, collaborators and other stakeholders to be relevant, credible, and legitimate to natural resources planning, management, and/or policy; and (2) the degree to which INR products and services have the potential to influence desired outcomes and/or change behaviors by clients and users.
- **Usability of products:** An assessment of the usability of INR processes, services, and products, including whether or not using INR was worth the effort.

Outcomes/Impact

- **Information support:** Extent to which INR work assists in natural resource-related decision making.
- **Decision quality:** The extent to which INR clients and users believe that the process leading to a decision and an expected outcome(s) of the decision were the best that could be made with available information.

APPENDIX A: Originating Purposes

The **Oregon Sustainability Act of 2001 (HB 3948)** sets the statutory purpose for the Institute for Natural Resources (Sect. 12 (2) to:

a) Serve as a clearinghouse for scientifically based natural resources information;
b) Provide scientifically based natural resources information to the public in integrated and accessible formats;
c) Coordinate efforts with other state agencies and bodies to provide natural resources information to the public in a comprehensive manner;
d) Facilitate and conduct research;
e) Provide information and technical tools to assist decision-making on natural resources issues.

Sect. 12 (4) of HB 3948 also authorizes the Institute to contract with agencies to meet their needs regarding collection, storage, integration, analysis, dissemination and monitoring of natural resources information and natural resources research and training.

Oregon State University chartered INR as an Oregon University System research institute in 2002, housed at OSU, with the following purpose (updated with this strategic plan):

- Increase accuracy and precision of natural resources problem identification;
- Improve natural resources priority setting;
- Promote critical natural resources policy analysis;
- Provide a venue and process for interdisciplinary research and natural resource problem solving by scientists and scholars most capable of addressing relevant problems;
- Provide central, continuous coordination of information and database management and delivery for Oregon's state and federal agencies and private sector institutions whose data and information are key to Oregon's sustainability;
- Provide scientifically sound and up-to-date data and resource assessments for use in natural resource conservation and economic development decision-making at all geographic scales;
- Provide for shared access and use of publicly available scientific and geographic information systems resources;
- Improve public understanding of the values of natural resources and policy choices and management opportunities unique to Oregon's watersheds, counties and bioregions;
- Decrease the time for incorporating research results into action programs; and,
- Improve the feedback mechanism for research refinements as they are needed.

APPENDIX B: Operational Goal

Goal 4: Strengthen INR's capacity and effectiveness.

Objectives and Actions

1. **Secure sufficient, unrestricted funds from a variety of sources to support INR's core functions, while maintaining the flexibility to expand and contract staffing based on workload.**
    a. Secure a designated development officer at each of the primary Oregon University System institutes to develop an INR capital campaign strategy.
    b. Develop complimentary fundraising activities with key Oregon University System colleges and departments.
    c. Establish ongoing Interagency Agreements with key collaborators.

2. **Become a people-centered organization that emphasizes collaboration, innovation, learning, and rewards.**
    a. Maintain a staff of knowledgeable analysts, modelers, and other professionals to meet client needs.
    b. Maintain staff with links to the Natural Resources faculty expertise in the large Oregon universities.
    c. Nurture and enhance our existing relationships with partners, stakeholders, and communities of interest.
    d. Provide opportunities for staff professional development.
    e. Improve communication, collaboration, and decision-making processes – internally and with our board, partners, and collaborators.
    f. Develop incentives for staff related problem-solving and engagement.

3. **Operate our offices with adequate organizational support, staffing, and infrastructure to advance our mission and goals.**
    a. Deepen our connections with the Oregon State University, Portland State University, and University of Oregon's research offices.
    b. Strengthen the connections among INR-OSU and INR-PSU staff, interns, and student workers through regular communications, opportunities to work out of either of the offices, and provide opportunities for collaboration across our offices.
    c. Establish an INR office at the University of Oregon.

4. **Increase INR visibility and branding.**
    a. Develop an integrated communication, outreach and marketing strategy.
    b. Communicate successes and achievements rapidly, strategically, and broadly.
    c. Promote INR work at a variety of forums, meetings, conference in the state and the region.
    d. Create, distribute, and archive print pieces and electronic newsletters that reinforce each another.
    e. Assure INR can simultaneously build credit for INR and the individual institutions within which it works, while crediting key partners.

APPENDIX C: Noteworthy Achievements

Highlights of our achievements from the last five years, the period of INR's last strategic plan, demonstrate our ability to put critical information in the hands of natural resource decision makers, managers and citizens. The majority of the work conducted by INR is funded by grants and contracts. These include the creation and continual refinement of INR's Flagship Products and Services.

INR PRODUCTS

- Oregon Biodiversity Information Center data, databases, and maps
- Oregon Explorer suite of portals, tools, and interactive maps
- Collaborative workspaces: Ecosystem Commons and iMapInvasives
- Reports, syntheses, and assessments
- Integrated Ecological Framework
- Integrated Landscape Assessment Program

Information Development, Management, and Access

- Housing and managing ***Oregon's most comprehensive database of rare, threatened, and endangered species*** (Oregon Biodiversity Information Center), including site-specific information on the occurrences, biology, and status of over 2,000 at-risk species throughout Oregon.
- Launching the ***Oregon Explorer*** in partnership with OSU Libraries in 2007. This natural resources digital library provides access to integrated natural resources information organized by 15 topic, location and data portals. Through the Oregon Explorer, users can interact with place-based, up-to-date scientific information through maps, data, images, publications, and user-driven tools. Information is archived, value-free, and maintained over the long-term.
- Launching the ***Oregon Spatial Data Library*** and the ***Oregon Imagery Library***, in partnership with the Department of Administrative Services-Geospatial Office and the OSU Libraries.
- Cooperating with the U.S. Fish and Wildlife Service, U.S. Bureau of Land Management, U.S. Forest Service, Oregon Department of Fish and Wildlife, and Oregon Parks and Recreation Department to coordinate snowy plover monitoring along Oregon's central and south coast, resulting in recent increases in estimates of snowy plover populations.

- Creating and providing access to landscape level maps, such as: ReGAP, SageMap, and maps for National Parks (Lewis and Clark, Mount Rainier, John Day Fossil Beds, parts of Crater Lake).
- Developing high resolution vegetation maps and assisting in developing priorities for the Portland – Vancouver (INTERWINE) Conservation Strategy.
- Serving as the Oregon lead for the international network of ***iMapInvasives***– an online, collaborative invasive species database and GIS program that details observation and management records and collaboration tools. At the time of publication, over 191,000 observations of 237 species are included.
- Conducting the ***Integrated Landscape Assessment Project*** (ILAP) – a two-year effort funded by the American Recovery and Reinvestment Act to create approximately 50 jobs focused on watershed-level prioritization of restoration in Arizona, New Mexico, Oregon, and Washington. The project is exploring the dynamics of broad-scale, multi-ownership landscapes over time by evaluating and integrating information on current and future vegetation and fuel conditions, wildlife habitat, watershed conditions, and the potential costs and benefits of management treatments. ILAP has produced consistent, integrated vegetation data sets and models for millions of acres across the American Northwest and Southwest and has created over 240 vegetation condition and change models. Products from the project are being used by land managers, planners, and policymakers to evaluate management strategies that reduce fire risk, improve habitat, and benefit rural communities. ILAP is a partnership of the U.S. Forest Service, INR, the OSU College of Forestry, and several state and federal agencies and non-governmental organizations in Oregon, Washington, Arizona, and New Mexico.

Research-Practice Integration

- Conducting program and science reviews, and joint fact finding for land use, forest management, Columbia River dredging, impacts of dredging aggregate in rivers, climate change, among others. Many of these are ***peer-reviewed INR Reports***.
- Launching and participating in statewide dialogues, producing reports and participating on working groups (i.e., Policy Cornerstones and Senate Bill 513), and conducting applied research on ecosystem service, environmental streamlining, forest ecosystem dynamics, and the National Environmental Protection Act.
- Launching and managing the ***Ecosystem Commons*** – an online community of over 1000 registered members who are using the Commons as a platform to engage with ecosystem services professionals from around the world.
- Collaborating with the Department of Land Conservation and Development and other state, regional, federal, and academic bodies to establish the Oregon Coastal Marine Data Network.
- Working with local, state, and regional groups to develop natural resource indicators (i.e., Columbia Gorge Vital Indicators Project, Greater Portland Pulse, and the Oregon Benchmarks).
- Published Oregon's first Natural Areas Plan on behalf of the State Land Board and the Natural Heritage Advisory Council.

- Developing the ***Integrated Ecological Framework*** (IEF) which integrates conservation planning and transportation planning. The IEF has been selected as a focus for national implementation by the Federal Highways Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO). The IEF is a congruent technical framework to the Eco-Logical approach, developed by eight Federal agencies in 2006 that recommends a collaborative, integrated, watershed or ecosystem scale approach to decision-making during infrastructure planning, environmental review, and permitting.
- Working with Defenders of Wildlife, the Oregon Department of Fish and Wildlife, The Wetlands Conservancy, and U.S. Fish and Wildlife Service to identify climate change impacts and adaptation strategies to be included in the next update of the Oregon Conservation Strategy.

Research and Project Coordination

- Working with multi-disciplinary, multi-institutional research projects to enhance research through data management.
- Facilitating the creation of faculty interdisciplinary teams on major, long-term competitive grant proposals, and evaluating interdisciplinary research consortia.
- Managing large multi-disciplinary, multi-institutional research and assessment projects.

Experiential Learning and Leadership Development

- Providing experiential learning opportunities for approximately 55 interns, student workers, and student worker volunteers, including eight master's projects or theses.
- Providing opportunities for six AmeriCorps volunteers and 48 citizen volunteers with ORNHIC/ORBIC work since 2001.

APPENDIX D: Linking Services and Products to Originating Purposes

INR SERVICES AND EXPERTISE

Information Development, Management, and Access

- Natural resource dataset compilation and integration
- Access to comprehensive information related to natural resources
- Resource mapping
- Digital library enhancements
- Vegetation and landscape modeling
- Creation of collaborative workspaces

Research-Practice Integration

- Applied policy research and synthesis
- Assessments and science reviews
- Convening forums, facilitated meetings, symposia, conferences and presentations
- Institutional analysis
- Program evaluation

Research and Project Coordination

- Facilitation of large grant proposal development
- Interdisciplinary research and project management
- Data management
- Evaluation

Experiential Learning and Leadership Development

- Student experiences on projects and

MISSION

The Institute for Natural Resources (INR) provides access to integrated knowledge and information to better understand natural resource decision making challenges and develop solutions in the context of sustainability.

INR FLAGSHIP PRODUCTS

- Oregon Biodiversity Information Center data, databases, and maps (ORBIC)
- Oregon Explorer suite of portals, tools, and interactive maps (OE)
- Collaborative workspaces: Ecosystem Commons and iMapInvasives
- Reports, syntheses, and assessments
- Integrated Ecological Framework (IEF)
- Integrated Landscape Assessment Program (ILAP)

HB3948 (2001) Section 12

The purpose of INR is to:	**Examples of INR actions**
a. Serve as a clearinghouse for scientifically based natural resources information.	ORBIC and OE
b. Provide scientifically based natural resource information to the public in integrated and accessible formats.	Reports, presentations, OE, ORBIC
c. Coordinate efforts with other state agencies and bodies to provide natural resources information to the public in a comprehensive manner.	ORBIC and OE
d. Facilitate and conduct research.	Numerous research projects
e. Provide information and technical tools to assist decision-making on natural resources issues.	Reports, syntheses, ILAP, IEF, OE, Ecosystem Commons
… *define and clarify roles and responsibilities of (state) agencies .. to prevent duplication … ensure agency resources … used efficiently (not sure if this is working as envisioned).*	*At the request of the Governor's Office*
… agencies may contract with … institute to fulfill agency needs regarding collection, storage, integration, analysis, dissemination and monitoring of natural resources information and natural resources research and training.	ORBIC, OE, Reports, IEF

OSU Category 1

Problems to be solved as mentioned in the Category 1	**Examples of INR actions**
1. … one place … citizens can obtain environmental and natural resources data and information that (a) is organized in ways to best answer questions, and (b) includes estimates of confidence that should be placed in the information.	ORBIC, reports, OE, IEF, iMapInvasives
2. one place outside the policy and regulatory domain where environmental and natural resources issues can be independently evaluated and options for solving problems can be formulated.	Convening, assessments, reports, Ecosystem Commons
3. … one place where lawmakers, policy makers and the public can obtain integrated, question-driven information on the status of Oregon's environment and natural resources, and on the relationships among environmental, economic and community and social considerations.	Convening, assessments, ORBIC, OE, ILAP, IEF
4. … need a trustworthy network for sharing information and for listening to advice and opinions about those issues.	convening, OE, ILAP, IEF, Ecosystem Commons

Purpose of Proposed Institute

Category 1 purpose of proposed institute	Examples of INR actions
Increase accuracy and precision of problem identification.	Through use of INR products and services
Improve priority setting.	Aided by use of INR products and services
Promote critical policy analysis.	Convening, reports, Ecosystem Commons
Provide a venue and process for interdisciplinary research and natural resource problem solving by scientists and scholars most capable of addressing relevant problems.	INR overall, convening, assessments, ILAP, IEF
Provide central, continuous coordination of information and database management and delivery for Oregon's state and federal agencies and private sector institutions whose data and information are key to Oregon's sustainability.	ORBIC, OE, ILAP, IEF
Ensure that scientifically sound and up-to-date data and resource assessments are used to support natural resource conservation and economic development decision-making at all geographic scales.	ORBIC, OE, ILAP, IEF
Provide for shared access and use of publicly available scientific and geographic information systems resources.	ORBIC, OE, ILAP, IEF
Improve public understanding of the values of natural resources and policy choices and management opportunities unique to Oregon's watersheds, counties and bioregions.	OE, ILAP, IEF, reports, symposia
Decrease the time for incorporating research results into action programs.	Convening, reports, assessments, ORBIC, OE, ILAP, IEF, Ecosystem Commons
Improve the feedback mechanism for research refinements as they are needed.	Learn from creating and maintaining products and services

INR Flagship Products and Services provided since 2001

These products and services can be thought of as INR's major business lines and brands.

Products and Services	Responsive to
Assumed administration of Oregon Natural Heritage Information Center from DSL (now **Oregon Biodiversity Information Center**).	• HB 3948: Section 12 (2) Purposes a-c, e • INR Cat 1: Problem 1
Established **Oregon Explorer** in partnership with OSU Libraries and state agencies; 15 topical, geographic and data portals through 2012; and **collaborative workspaces.**	• HB 3948: Section 12 (2) Purposes a, b, c, and e • INR Cat 1: Problem 1
More than 100 publications (**Reports, Syntheses, and Assessments**) for state and federal agencies through 2011.	• HB 3948: Section 12 (4) • INR Cat 1: Problems 2 and 3
Numerous **Seminars, Presentation and Testimonies.**	• Section 12 (2) b and d in HB 3948 • INR Cat 1: Problem 3
Integrated Landscape Assessment Project in partnership with federal and state agencies, universities and private sector entities for Washington, Oregon, Arizona and New Mexico.	• HB 3948: Section 12(2) d • INR Cat 1: Problems 1-4
Integrated Ecological Framework in partnership with the National Academy of Sciences Transportation Research Board, the Federal Highways Administration, AASHTO, NatureServe, Venner Consulting, CH2MHill, Parametrix, several programs within the national Natural Heritage Program Network, and multiple federal agencies.	• HB 3948: Section 12(2) b, d, e • INR Cat 1: Problem 2, 3, 4
Experiential Learning and Leadership Opportunities.	• HB 3948: Section 12(2) b, d, e • INR Cat 1: Problems 1-4
Research Coordination Services.	• HB 3948: Section 12(2) b, d, e • INR Cat 1: Problems 1-4