

## SPECIAL INTEREST AREAS AND RESEARCH NATURAL AREAS

### ISSUE STATEMENT

Special interest areas (SIA) are authorized under CFR 36 294.1 and defined as areas which should be managed principally for recreation use substantially in their natural condition. They are managed for their unique scenic, geologic, historical, archaeological, botanical, cultural, or other memorable features.<sup>1</sup> Research Natural Areas (RNA) are authorized under Forest Service Manual (FSM) Section 4063 and defined as a physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention to provide a baseline against which man-caused changes elsewhere can be measured (Moir 1972; Burns et al 1984). RNAs are established specifically to preserve a representative example of an ecological community primarily for scientific and educational purposes.<sup>2</sup> The FSM 4063.1 states: "Research Natural Areas must be large enough to provide essentially unmodified conditions within their interiors. In the West, 300 acres of land is generally considered the minimum size." However, in order to represent a variety of successional stages, landscape patterns, plant associations, and environmental variables, RNAs for some ecosystem types will often need to be considerably larger than 300 acres. Some proposed RNAs in the Rocky Mountain Region currently exceed 5,000 acres. The viability of species and persistence of natural disturbance patterns are also often size dependent (Andrews 1993).

The forest plan revision process is the opportunity to address directly the protection of existing special interest areas (geological, botanical, historical,

cultural, etc.) and research natural areas and the establishment of additional areas. In the coming years, it will be critical to enhance these areas and provide additional areas to offer refugia and added buffering of impacts to wildlife brought about by climate change. This may require a network of natural areas be built that represents the full diversity of ecosystems found across the region while recognizing that each site is a dynamic ecosystem that will change over time.

Basic consideration of the designations during the forest plan revision process should include the following:

- Existing designated areas must be preserved in future forest plans.
- Additional areas that are established must be designated with appropriate standards and guidelines and monitoring.
- Coordination of new and existing SIA and RNA areas with other current specially designated areas must be considered:
  - a) Specific designated areas within national forest boundaries under specific federal acts include: other agency areas (National parks and Monuments, State parks, F&G wildlife refuges, FERC license areas (reservoirs, etc), Wilderness, Wild and Scenic rivers, Roadless areas
  - b) Specific designated areas at the local forest level include: Primitive areas, Research Natural Areas, Special Interest Areas, Experimental forests, Old Forest Emphasis Areas, Vehicle Control Areas, Non-motorized Recreation areas and trails (PCT), Riparian Conservation Areas, Campgrounds, Staging areas (snowmobile, OHV, rafting, equestrian), Ski resorts, Special permits (mining, grazing, race events)
  - c) In addition, certain protections are established to provide a diversity of species: PACs, HRCAs, Carnivore Corridors, Deer Migration Corridors, Climate Change Corridors, Management

<sup>1</sup> See Appendix D for existing status of Special Interest Areas for Sierran Forests.

<sup>2</sup> See Appendix D for existing status of Research Natural Areas for Sierran Forests.

Indicator Species,  
Endangered/Threatened/Special  
Concern Species, Important Bird Areas.

- Consideration should be given to identify and establish any additional categories that are needed.
- Determination of specific land additions in any of these categories (new wilderness, etc.).

Special Interest Areas are meant to be a destination for recreational opportunities, and so will have direct human impacts. Since Research Natural Areas are not meant to be a recreational destination, the same kind of impacts are not presumed. Specific concerns for each type of interest area that must be addressed in an area-specific management plan include:

- Geological (including paleontology) – human disturbance of caves, vandalism, collecting
- Botanical – invasive species, grazing, timber management, fire (or lack thereof), OHVs, collecting
- Scenic – excessive noise, litter, clearcuts, fire
- Zoological – nest and den disturbance, loss of corridors, invasive species, fire
- Cultural - Cultural resources are especially vulnerable to disturbance; once disturbed or damaged, the information lost is irreplaceable. Disturbance stems from use of metal detectors and shovels to obtain artifacts; in some cases heavy equipment is used. A comprehensive program of public education, site enhancement, 'antiquities' signing, and frequent patrolling will be necessary to reduce vandalism.

Common threats to special interest areas include vandalism, timber projects, vegetation management, fire, flooding, invasive species, and climate change.

Climate change presents a special challenge since the baseline or reference area may change. Climate will also affect biotic populations directly. The new forest plans must ready the Sierra to respond to the major stressors, giving ecosystems and species room to survive and adapt, and ensuring that

managers are ready to learn from and respond to change. Decisions will have to be taken in a swiftly changing context, but without sacrificing scientific rigor or public involvement. The new forest plans must, therefore, be designed to guide forest managers for the crucial years ahead

#### **POLICY ACTIONS NEEDED**

##### ***Proposal for Revision to Forest Plan Direction***

**A. Desired Condition** *The following statements represent the desired future condition of the landscape and may not reflect the current conditions.*

Desired Condition SA-1. A network of Research Natural Areas represents the full diversity of ecosystems found across the region while recognizing that each site is a dynamic ecosystem that will change over time. Size of the areas must be large enough to adequately represent the plant community or unique ecosystem features to be researched and be protected from destruction (i.e. climate change, uncharacteristic fire, unauthorized OHV entry, etc.). Redundant<sup>3</sup> areas may be necessary to maintain a range of study areas and sufficient population sample sizes.

Desired Condition SA-2. Special Interest Areas of national forest land are designated to protect unique scenic, geologic, historical, archaeological, botanical, cultural, or other memorable features, other than wilderness or wild areas, which should be managed principally for recreation use substantially in their natural condition.

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<sup>3</sup> We use the use of the term redundant in the context of ecological systems (Berkes et al. 1998). Spatial redundancy of ecological subsystems is desired for purposes of experimentation and replication. Redundancy of subsystems or components of an ecosystem is also important to conservation planning. Redundancy can reduce the likelihood that elements (e.g., species, rare habitats) will be lost as a result of stochastic events or other stressors.

## B. Objectives

Objective SA-1. To reduce institutional barriers to natural and special interest areas designation and improve access to establishment information.

Objective SA-2. To review and improve the standards and guidelines for the management of these areas to ensure their protection and sustainability.

Objective SA-3. To collaborate with the local communities, the scientific community, and other interested stakeholders to solicit input as to what areas should be added to existing RNAs and SIAs in each of the national forests.

Objective SA-4. Ensure that an RNA network is created to preserve a wide spectrum of pristine areas that represent important forest, shrubland, grassland, alpine, aquatic, geological, and similar natural situations that have special or unique characteristics of scientific interest that are part of a national network of ecological areas for research, education, and maintenance of biological diversity. Address the following in the development of the network:

- Develop a timeline for establishing the network
- Preserve and maintain genetic diversity via the network.
- Ensure that regional ecosystems and any associated rare species are represented in the natural areas network now and in the future.
- Reference areas for the study of succession.
- On-site and extension educational activities.
- Baseline areas for measuring long-term ecological changes.
- Control areas for comparing results from manipulative research.
- Monitoring effects from resource management techniques and practices on adjacent forest.

Objective SA-5. Design the RNA network to foster resiliency to changes from serious environmental

disruptions such as climate change that will reshape these ecosystems over time.

Objective SA-6. Periodic monitoring of individual RNAs is integrated at the regional level to support evaluation of the RNA network.

## C. Standards

Standard SA-1. Create a management plan for each RNA that includes:

- A baseline set of data for the area including vegetation, wildlife, streams, and geology;
- Management practices designed to meet and enhance the objectives of the RNA;
- A monitoring plan for key resources in the area; and
- Annual or periodic process for reviewing monitoring and revising the management plan to ensure that the RNA values are being maintained.

Standard SA-2. Control of fire within Research Natural Areas shall be by methods that cause the least disturbance.

- Inside RNA—Conduct all fuel treatment activities, including the use of planned prescribed fire, in accordance with the plan developed to manage and protect this area. Normally, methods that employ machinery shall not be used. If fire is prescribed, only part of the research natural area shall be allocated for prescribed burning and part shall be reserved for future fire cycles.
- Outside (adjacent) to RNA – Where activity and natural fuels create a threat of a damaging fire carrying into the RNA, treat to a level that reduces the risk to an acceptable level.

Standard SA-3. Maintain roads, culverts and streams to avoid unnatural flooding in RNAs.

Standard SA-4. Prevent invasive species introduction in RNA.

Standard SA-5. Prevent unauthorized entry into the areas for activities such as grazing, OHV, tree cutting, hunting, etc.

Standards SA-6. Create a management plan for each SIA that includes:

- A baseline set of data for the area including vegetation, wildlife, streams, and geology;
- Management practices designed to meet and enhance the target features of the SIA;
- A monitoring plan for target and key resources in the area; and
- Annual or periodic process for reviewing monitoring and revising the management plan to ensure that the SIA values are being maintained.

Standard SA-7. Protect SIAs against illegal activities that include:

- Geological (including paleontology) – cave disturbance, vandalism, collecting
- Botanical – invasive species, grazing, timber management, fire, collecting

- Scenic – excessive noise, litter, clearcuts, fire
- Zoological – nest and den disturbance, loss of corridors, invasive species, fire
- Cultural - Cultural resources are especially vulnerable to disturbance; once disturbed or damaged, the information lost is irreplaceable. Vandalism of cultural resources is a major concern.

Standard SA-8. Maintain safe access to SIAs.

Standard SA-9. Provide adequate facilities for SIAs.

Standard SA-10. Provide educational materials, e.g., maps and brochures, at SIAs and district offices; work with special interest groups and supporters to develop materials

Standard SA-11. Manage botanical, scenic, and cultural SIAs with appropriate use of prescribed and managed fire to enhance and maintain valued and target botanical features.

**D. Regionwide Land Allocations**

Table IV K-1. Land allocations for special areas.

Land Allocation	General Description	Management Objective
Special Interest Areas (SIA)	Designated by the individual forest.	Defined by the designation.
Research Natural Areas (RNAs)	Designated by agreement among the national forest and research station.	Maintain biological diversity Provide baseline ecological information Support non-manipulative research Encourage research and university natural-history education.

The following factors should be considered when identifying additional RNAs and SIAs:

- Although natural areas need not be large to protect some rare plant species that are limited to specific rare habitats (e.g., tens of acres), setting aside adequate space for ecosystem-level representation generally requires much larger sites (e.g., hundred to thousands of acres), and these are becoming increasingly difficult to find in places where human development is extensive.
- As part of designation efforts, further conceptual development may also be needed to determine the composition of sites that should be included in a complete and resilient network. One option is to build a redundant natural areas network, with multiple representations of each ecosystem along a gradient of ecological stages and conditions. Such a network would allow for natural change to occur on any given site over time, while still maintaining representation of the ecosystem elsewhere in the network.
- The network could also be expanded to include biodiversity "hotspots" such as sites with rare species or those that comprise unique compositions of taxa that are not adequately captured by plant associations. Site redundancy may be especially important given the growing recognition that climate change (natural and anthropogenic) may pose the greatest challenge to long-term management of natural ecosystems (Malcolm et al. 2002).
- However, redundancy alone will not be adequate to protect some sites in the face of environmental change. For example, climate change will likely result in differential shifts in plant and wildlife communities along moisture and elevational gradients as each organism responds uniquely to

environmental change (Lovejoy and Hannah 2006).

- The complexity of the establishment process itself and length of time it takes to get a site established can be an impediment to designation. Designating multiple alternative sites during establishment can be useful in preventing such delays.

***Recommended Actions at the National Forest Level Not Directly Addressed in the Forest Plan***

- Complete establishment documentation, including up-to-date legal boundary descriptions, geographic information system maps, establishment reports, existing survey data, and guidebooks for both new and existing sites and establish a central file location accessible to all partners and interested publics (such as an interagency website).
- Prepare an overlay of existing other specific designated areas of forest preservation (wilderness, wild and scenic river, roadless areas, important bird areas, etc.) with RNAs and SIAs and specify additional designated areas.
- Re-examine areas currently listed in Land Management Plans in light of climate change and increased recreational activities.
- Add remaining missing ecosystems and species listed in current state heritage plans to the natural areas network, beginning with high-priority sites.
- Include proposed alternative sites, if available, when establishing a new natural area.
- Solicit ideas from the general public, scientific community, and California Indian tribes for additional SIA and RNAs.

- Determine what additional monitoring is required to protect existing SIA and RNA resources.
- Determine SIA and RNA opportunities based on revised system and travel management requirements.
- Determine California Indian Cultural SIA opportunities to establish and conserve culturally important gathering areas for tribal traditions such as basketweaving.
- Examine impacts of proposed utility corridors on existing SIA and RNAs.
- Determine SIA and RNA restoration requirements based on legacy impacts (toxic mining, old growth removal, stream bed and flow alteration, grazing, non-native species introduction).
- Existing RNAs and SIAs should be re-examined in light of property ownership changes and buffer areas established where possible. These buffer areas could later be incorporated as an expansion as the areas recover from past activities (an example is Sugar Pine Point RNA where the surrounding lands were exploited by private landholders but the land is now in the hands of the FS).
- Examine the areas identified as Experimental Forest and reconsider the current designation. It might be wise to reclassify as RNA or SIA and minimize the type of manipulation allowed in those areas. A case in point is the Onion Creek experimental forest. Since there is so little older forest left, and by and large that remaining is off limits to commercial exploitation, there is less need for study of

major manipulation of older forest areas. New experimental forests can be established for the previously heavily managed forest areas where studies on fuel treatments and restoration activities could be undertaken.

- Review Audubon's Important Bird Areas for potential inclusion as Special Interest Areas.
- Determine wildlife corridors and what impact these may have on existing SIA and RNAs. Evaluate wildlife corridors (allow for climate change), and nest/den location of existing endangered/threatened/special concern species, while protecting the location of these sensitive areas from wide public exposure.

#### ***Recommendations for New Regional Direction or Policy***

- Conduct an interagency workshop focused on conceptual development of a complete natural areas network across all Sierran forests.
- Ensure that coordination of Research Natural Areas across forest lines occurs, so that logical boundaries include watersheds, wildlife corridors, and protection of rare species and forest ecosystems.
- Incorporate mandatory state and federal environmental reviews for management in natural areas as part of broader agency planning efforts so that natural areas do not need to be addressed separately.
- Consider revision of SIA and RNA requirements based on the new ecosystem approach to forest management, including consideration of larger areas (500+ acres).

#### **REFERENCES**

Andrews, T. 1993. Criteria for research natural area selection. USDA Forest Service Rocky Mountain Region and Rocky Mountain Forest and Range Experiment Station. October 1993.

Berkes, F. and Folke, C. 1998. *Linking social and ecological systems: management practices and social mechanisms for building resilience*. Cambridge University Press, Cambridge, UK.

Burns, R. M. 1984. Importance of baseline information to the research natural area program. In: Johnson, J. L., J. F. Franklin, and R. G. Krebill, coordinators. *Research Natural Areas: Baseline Monitoring and Management. Proceedings of a Symposium in Missoula, MT, March 21, 1984*. USDA Forest Service General Technical Report INT-173. 84 pp.

Keeler-Wolf, T. 1990. *Ecological Surveys of Forest Service Research Natural Areas in California*. Gen. Tech. Report PSW-125. Berkeley, CA: Pacific Southwest Research Station. Forest Service, U.S. Department of Agriculture; 177 p.

Lovejoy, T.E. and Hannah, L.J. (Editors). 2005. *Climate change and biodiversity*. New Haven, CT: Yale University Press. 440 p.

Malcolm, J. R., Liu, C., Miller, L.B., Allnutt, T., and Hansen, L. 2002. *Habitats at risk: global warming and species loss in globally significant terrestrial ecosystems*. Gland, Switzerland: World Wildlife Fund for Nature. 39 p.

Moir, W. H. 1972. Natural areas. *Science* 177: 396 - 400.

