PLANT AND ANIMAL DIVERSITY

What we want to achieve

The Forest Service is committed to protecting species and sustaining the ecosystems and ecological conditions that provide the life support of all species, to the best of our ability. We want to keep common species common, contribute to the recovery of threatened and endangered species and the protection of species of concern or at risk, and maintain the diversity of plants and animals on National Forests and Grasslands. We are committed to the goals of the Endangered Species Act (ESA) and the National Forest Management Act (NFMA). We recognize that species and threats cross boundaries, and are committed to looking across boundaries and managing National Forest System lands to contribute to overall species protection and species diversity.

In doing so, we are committed to fulfilling the diversity requirement of the NFMA, which directs the Forest Service to: "provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan" 1604(g)(3)(B).

We believe that well-designed and focused monitoring can provide valuable information needed to check ecosystem function. We believe monitoring is best achieved by combining our efforts with other agencies and stakeholders to share knowledge, and we are committed to contributing to monitoring efforts that can give us information at the appropriate scale, beyond management and ownership boundaries.

The challenge we face

In seeking to achieve our species and ecosystem goals, we must recognize and work within the capability of the land we manage and the authorities Congress has provided. Especially in a time of climate change, we must acknowledge that the viability of many species depends on habitat, threats, and actions outside the boundaries of National Forest System and the control of the Forest Service. The 1982 Planning Rule went beyond the diversity standard required by NFMA, and instead required the Forest Service to manage habitat to maintain viable populations of

native and desired non-native vertebrate species within the planning area.[1] We now know the 1982 viability standard in the rule is often unattainable because of factors outside the control of the agency. For example: 1) many species (e.g. neo-tropical migrant birds and large carnivores) are dependent on habitat both on and off National Forest System lands, and may spend a significant part of the year or of their life cycles outside NFS boundaries; 2) activities outside the National Forest System (e.g. increasing fragmentation of habitat, non- and point source pollution) often impact species and their habitats, both on and off NFS lands; 3) we have learned that species might not occupy suitable habitat even when it is available for use; and 4) climate change and related stressors will impact many species and may make it impossible to maintain current ecological conditions. Other stressors, like invasive species, insects and disease, catastrophic wildfire, floods and droughts, and changes in precipitation timing and flow, among others, will also impact species and habitat in ways that the Forest Service cannot completely control or mitigate for.

What we propose

NFMA requires that we "provide for **diversity of plant and animal communities** based on the **suitability and capability of the specific land area** in order **to meet multiple-use objectives**." To fulfill this requirement of NFMA and to achieve the Forest Service's species and ecosystem goals, the Forest Service proposes working within our authorites and the capability of the plan area to provide the ecological conditions for ecosystem and species diversity and to support viable populations of native species in the plan area to meet specific goals related to species that are threatened, endangered, at-risk, or of concern.

This goes beyond the 1982 standard by returning to the NFMA's focus on all plants and animals that make up a community, or ecosystem, as opposed to the 1982 Rule's focus on vertebrate species. It also would provide conditions for ecosystem diversity, as well as species diversity, and would require the Forest Service to contribute, within the plan area, to the overall structure, composition, and function of ecosystems beyond the plan area boundaries.

[1] Viability Standard in the 1982 Rule, at 219.19: Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. For planning purposes, a viable population shall be regarded as one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.

Generally, we believe that providing the structure, composition, processes, and diversity of healthy and resilient ecosystems will support ecosystem and species diversity and viable populations of most species, within the capability of the land. In cases where species are locally rare, threatened, or endangered, each planning unit will be responsible for providing specific ecological conditions to conserve the species and maintain their persistence on the plan area, within the Forest Service's authorities and the capability of the land. If neither healthy, resilient ecosystems nor specific ecological conditions are sufficient to conserve a species, then the planning unit must describe the challenge and identify the ecological conditions that it will provide to contribute to conservation of the species. This approach to species viability is termed "coarse filter/fine filter," reflecting the strategy of starting with a broad conservation focus and narrowing in as needed. The use of coarse filter/fine filter approach is widely accepted by the scientific community and other stakeholders interested in this issue.

In addition to providing ecological conditions and assessing species viability through a coarse filter/fine filter approach, we are proposing a two-tiered program of unit and landscape-level monitoring to check assumptions made during the planning process, track changing conditions, assess and hold managers accountable for implementing management activities, and gather data and information to feed back into the planning process in order to meet species and ecosystem goals.

Monitoring would focus on tracking ecological conditions and trends relevant to achieving species-related goals, and could include tracking a strategically selected, small set of "focal species" to assess the degree to which ecological conditions are supporting species diversity within the plan area. Focal species would be identified based on their sensitivity to changing conditions or ability to confirm the existence of the desired ecological conditions. Focal species are not the same as "management indicator species" identified in the 1982 rule, in that they would not be selected "because their population changes are believed to indicate the effects of management activities on other species of selected major biological communities," a theory which has been debunked since the publication of the 1982 rule.

The proposed planning framework of "assess, revise/amend, and monitor" creates a collaborative and continuous cycle for refining management activities to achieve species goals. Managers would involve the public at every phase of planning, and work collaboratively when assessing conditions and trends, identifying proposed management actions, selecting focal species, and designing and implementing the monitoring program to assess whether we are successfully providing ecological conditions for ecosystem and species diversity, within our authorities and the capability of the land.

Using the all-lands approach, we would also proactively and collaboratively look across boundaries to assess species protection, recognizing the impact of factors and conditions outside the limits of the NFS, as well as the potential impact of management activity on NFS lands to the surrounding landscape.

What we heard

There was a range of opinions on the way the rule should provide for species diversity. People seemed to concur about the importance of the issue of species diversity, but there was no consensus around one particular approach. Among the wide- ranging opinions, some wanted the following:

- approaches based on protecting and maintaining healthy habitats and sustainable ecosystems coupled with validation through monitoring,
- promoting biodiversity and measuring it with a biodiversity index,
- monitoring landscape characteristics as proxies for a suite of species,
- focusing on "at-risk" species,
- simply repeating the diversity language in NFMA
- focusing on the language in the ESA
- protecting species identified as important to local communities,
- in general, reducing stressors in the environment that can impact species diversity.

Many stakeholders noted that efforts to sustain populations will have to consider effects beyond Forest Service lands because many species exist across administrative boundaries. Consistently, stakeholders emphasized the need to coordinate and cooperate beyond Forest Service borders for purposes of identifying and protecting critical habitat, migration corridors, and other habitat elements, although it was noted that the Forest Service has no authority beyond NFS lands and the planning rule cannot impose requirements on other land owners. Also, there was concurrence among scientists and participants that the rule needs to deal in some way with the risk that changing conditions will place on species and populations.

Essentially all of the discussions about plant and animal diversity touched on monitoring – and the need for both fine and coarse filter approaches. Concern was expressed that the Agency may not have the resources to conduct sufficient monitoring, although the monitoring technology has improved dramatically in recent years and is available at lower costs. Both participants and scientists suggested that collaboration and coordination with other groups and agencies should allow for the sharing of monitoring and data at a variety of scales. Also, some stakeholders

suggested that the rule should develop standards for species diversity that are outcome based, but that plans should develop the specific requirements to meet these outcomes.

Proposed approach from the Planning Rule Team:

NFMA requirements and agency goals for plant and animal diversity would be provided for as follows:

- Within the FS authority and capability of the plan area and in order to meet multiple use objectives, the plan must provide for ecosystem and species diversity by:
    - Having plan components to guide the maintenance or restoration of structure, composition, processes and diversity of healthy and resilient ecosystems
    - Having plan components to provide the ecological conditions to support viable populations of native species in the plan area to:
        - Contribute to recovery of T/E species,
        - Provide for the conservation of species at risk to preclude the need to list under ESA,
        - Provide for the conservation of species of concern to prevent extirpation from the plan area,
    - If the components for the ecosystems would not be sufficient to achieve the above goals, the plan must include additional species specific components, and
        - When conservation is not achievable, provide for the contribution of the plan area to species.
    - Plan components would guide management that would contribute, within the plan area, to the overall structure, composition, and function of ecosystems beyond the plan area boundaries.
- Assessments must evaluate ecosystem diversity and species diversity by
    - Evaluating composition, structure and ecological processes
    - Evaluating at the appropriate scale, the ecological conditions to sustain the viability of species with known conservation concerns
    - Identifying factors that limit viability of species with known conservation concern
    - Considering plans of other agencies
- Monitoring questions must address
    - Status and trends of key ecological conditions affecting species and ecosystem diversity within the plan area, focusing on threats and stressors that may affect ecological sustainability such as management activities, invasive species, or climate change

  - Status and trends of a strategically selected, small set of focal species to assess the degree to which ecological conditions are supporting species diversity within the plan area
- Definitions
  - Conservation: (1) protection of plan and animal habitat, (2) the management of a renewable natural resource with the objective of sustaining its productivity in perpetuity while providing for human use compatible with sustainability of the resource; (3) the process or means of maintaining or restoring ecological conditions to support ecosystem and species diversity.
  - Ecological Conditions: Components of the biological and physical environment that can affective the diversity of plant and animal communities and productive capacity of ecological systems. These components could include the abundance and distribution of aquatic and terrestrial habitats, roads and other structural developments, human uses, and invasive species.
  - Ecosystem Diversity: The variety and relevant extent of ecosystem types, including their composition, structure, and processes within all or a part of an area of analysis.
  - Focal species: species selected for assessment and monitoring whose status and trends are likely to be responsive to changes in ecological conditions, permit inference to the integrity of the overall ecosystem, and provide meaningful information regarding the effectiveness of the plan in maintaining the diversity of plant and animal communities in the plan area.
  - Viable Population: a population of a species that continues to persist in the plan area over the long term with sufficient distribution to provide for resilience and adaptability. A population is defined as the individuals of a species that occur within the plan area.
  - Species of concern: Species that are rare within the plan area but are relatively secure throughout their range
  - Species at risk: Candidate, proposed, and other species for which loss of viability, including reduction in distribution and abundance, is a concern across the range of the species.

Comparison with the 1982 Rule

The 1982 rule required:

- Management of habitat to maintain viable populations of native and non-native vertebrate species

- Selection of management indicator species
- Identification of habitat critical for threatened and endangered species, and measures to prevent adverse modification.

The Planning Team's proposed approach for the 2011 rule fundamentally changes the 1982 approach by:

- Focusing on sustaining ecological conditions to provide for ecosystem and species diversity using a coarse filter/fine filter approach, within our authorities and the capability of the land
- Addressing ecological conditions for all native species
- Providing the ecological conditions to support viable populations of native species in the plan area to meet specific goals related to species that are threatened, endangered, at-risk, or of concern
- Collaboratively developing and implementing a two-tiered monitoring program, including selecting a small set of focal species to monitor in order to validate the existence of desired ecological conditions and to signal important ecological changes.
- Working collaboratively to assess and monitor conditions on and beyond the boundaries of an individual unit, and working on the unit to contribute to ecosystem diversity and function beyond the unit to meet species goals