06-302

The Role of DoD Lands for Endangered Species Protection

Background:

Many Department of Defense lands provide habitat for plant and animal species that are protected under the Endangered Species Act or are otherwise of conservation concern. Indeed, DoD lands appear to support a much larger number of rare and endangered species nationwide than would be suggested by their relatively modest extent. Our previous analysis of the distribution of endangered and imperiled species among the lands managed by different U.S. federal agencies found that DoD lands harbored more federally listed species than those of any other agency. The results of this analysis, based on 1996 data, have played a pivotal role in shaping the military's planning and response to range sustainability and endangered species management issues.

NatureServe has now updated its analysis of the distribution of imperiled and endangered species on federal lands based on current species locational data. Over the past decade a number of changes have made such a reassessment timely, and this new analysis provides a current view of relative stewardship responsibilities of federal land management agencies, including DoD.

Objective:

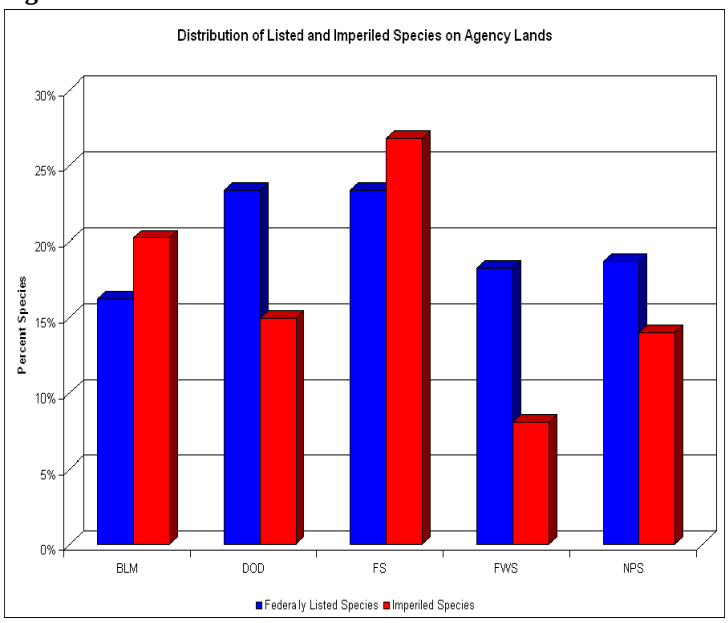
A GIS overlay analysis of current species locational data with coverages for federal lands enabled us to address the following questions:

- How many listed and imperiled species occur on lands of each of the major federal land management agencies? (see Figure 1)
- How significant are different federal lands for endangered species based on their density of endangered and imperiled species? (see Figure 2)
- How are listed and imperiled species distributed across the lands of the different military services?
- Which military installations harbor the greatest number of listed and imperiled species?

Summary of Approach:

NatureServe conducted this analysis using a two-stage approach. We first carried out a GIS-based analysis comparing natural heritage locational data for imperiled and endangered species with a coverage of federal land holdings. For this analysis, "federally listed" includes all species with formal status under the Endangered Species Act, including proposed and candidate species, and "imperiled" refers to species with NatureServe status assessments of critically imperiled or imperiled.

Figure 1



These preliminary findings were then reviewed by state natural heritage and/or federal agency biologists, and vetted against agency-generated species lists.

Benefit:

The results of our earlier analysis of the distribution of federally listed species on federal lands have been widely cited as documenting the importance of military lands for protecting the nation's endangered species. These figures have provided a compelling context for DoD's civilian and military leadership as they have worked to balance the need to maintain military readiness with environmental stewardship responsibilities. A current understanding of the relative stewardship responsibilities of the different federal agencies with respect to endangered species protection should enable the military to further its efforts to effectively carry out cooperative conservation efforts with other governmental agencies, as well as non-governmental entities and private landowners.

Accomplishments:

The results of our analysis are reported in a paper submitted for publication in the journal BioScience. A brief summary of these results is included here.

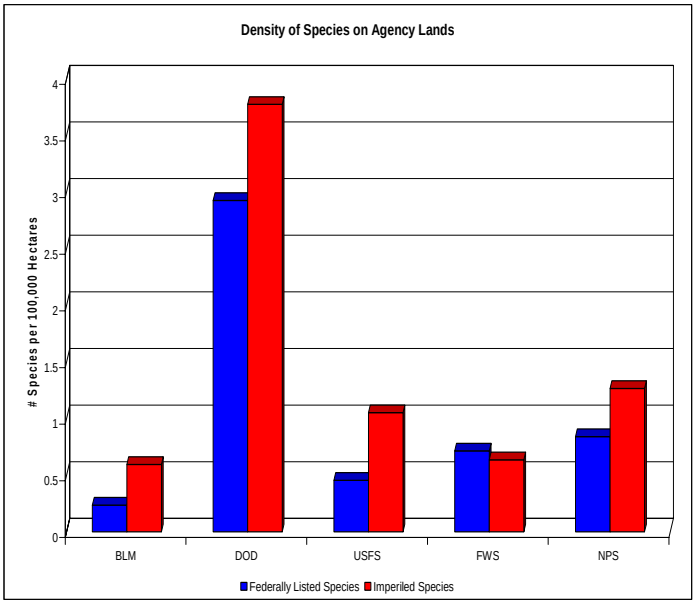
This updated analysis indicates that lands of the USDA Forest Service and the Department of Defense now share the distinction of harboring the most federally listed species. Lands of both agencies harbor about 23% of the species with federal status included in our analysis,

representing at least 355 species for each (Figure 1). These two agencies are followed by the National Park Service (19%), Fish and Wildlife Service (18%), and Bureau of Land Management (16%) respectively. Because we sought to minimize false reports of species on an agency's landholdings, these figures represent a minimum number of listed species that currently exist on these lands.

In contrast to the pattern for listed species, Forest Service lands harbor the most NatureServe-defined imperiled species, with 27% of the total number analyzed, accounting for at least 821 species (Figure 1). BLM ranks second with 20% of the total, followed by military lands with 15% of imperiled species analyzed.

Although the overall number of species occurring on an agency's lands offers an important perspective on relative stewardship responsibilities, this measure masks the vast differences in acreage under management of the different agencies. Analyzing species density per unit area provides an alternative perspective that normalizes for size differences. Based on a calculation of number of species per unit area, Department of Defense lands stand out with 2.92 listed and 3.77 imperiled species per 100,000 hectares. By this concentration measure the significance of military lands exceeds that of any other agency by a factor of three (Figure 2).

Figure 2



Given the disproportionate significance of DoD lands for endangered species, we also explored their distribution across the military services. Army lands harbor more than twice the number of species of concern (15% listed and 9% imperiled) as those of the Navy (7% listed and 4% imperiled), which had the second highest number.

A key question regarding the overall ranking of military lands is whether these patterns are based on biological factors, or whether these lands are simply better inventoried than lands of other agencies. Comparison of the location of military installations with known hot spots of rare species lends credence to the underlying biological significance of DoD land holdings.

The Hawaiian islands, in particular, play an important role in the Department of Defense's overall ranking. This chain of oceanic islands is well known for its high levels of endemism, many extremely rare species, and large number of species extinctions. Just three federal agencies manage significant amounts of land in Hawaii: the National Park Service, U.S. Fish and Wildlife Service, and DoD. While the Park Service administers the largest areas, DoD manages more discrete land units. These multiple, dispersed military installations have the effect of increasing the number of different species found on DoD lands. Indeed, more than one-third (34%) of all listed species found on DoD lands are Hawaiian, and four of the top five military installations for both listed and imperiled species are located in Hawaii.

While the Department of Defense now shares with the Forest Service the distinction of having the most federally listed species, it remains clear that military lands have a disproportionate importance to the nation's rare and endangered species. This is seen most clearly in the high density of imperiled and listed species on military lands (Figure 2). While conflicts sometimes exist between the military's use of these lands and protection of endangered species, the two have found a balanced coexistence at an increasing number of installations. Indeed, the maintenance of natural habitats and native biodiversity is important for providing realistic military training experiences.

Given the current and projected pace of private land development, we can expect that federal lands will assume an increased importance for the protection of our native species. At the same time, public lands are under increasing pressure to produce energy, fiber, and other resources, as well as contribute to national security. This reassessment of the role of federal lands for endangered and imperiled species provides clear evidence of the importance of public lands as reservoirs of biodiversity. While maintaining the nation's biological heritage cannot be carried out on federal lands alone, how these public trust lands are managed and maintained will be a major determinant in our success at sustaining America's rich diversity of wildlife.

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