

Species at Risk on DoD Lands:

Updated maps and analyses

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A Network Connecting Science with Conservation



The Questions We Address

- What species and habitats exist?
- Where are they found?
- How are they doing?
- What actions will help?
- Are the actions working?

Dragonfly
© Lawrence L. Master



Dalea Gattingeri
© James E. Henderson



Alaskan bog ecosystem



Tracked elements

- Imperiled and vulnerable plants (focus on vascular plants)
- Imperiled and vulnerable animals (all vertebrates and many invertebrate groups)
- Exemplary ecological communities (most programs)



“Boots on the Ground”



Alabama Natural Heritage Program

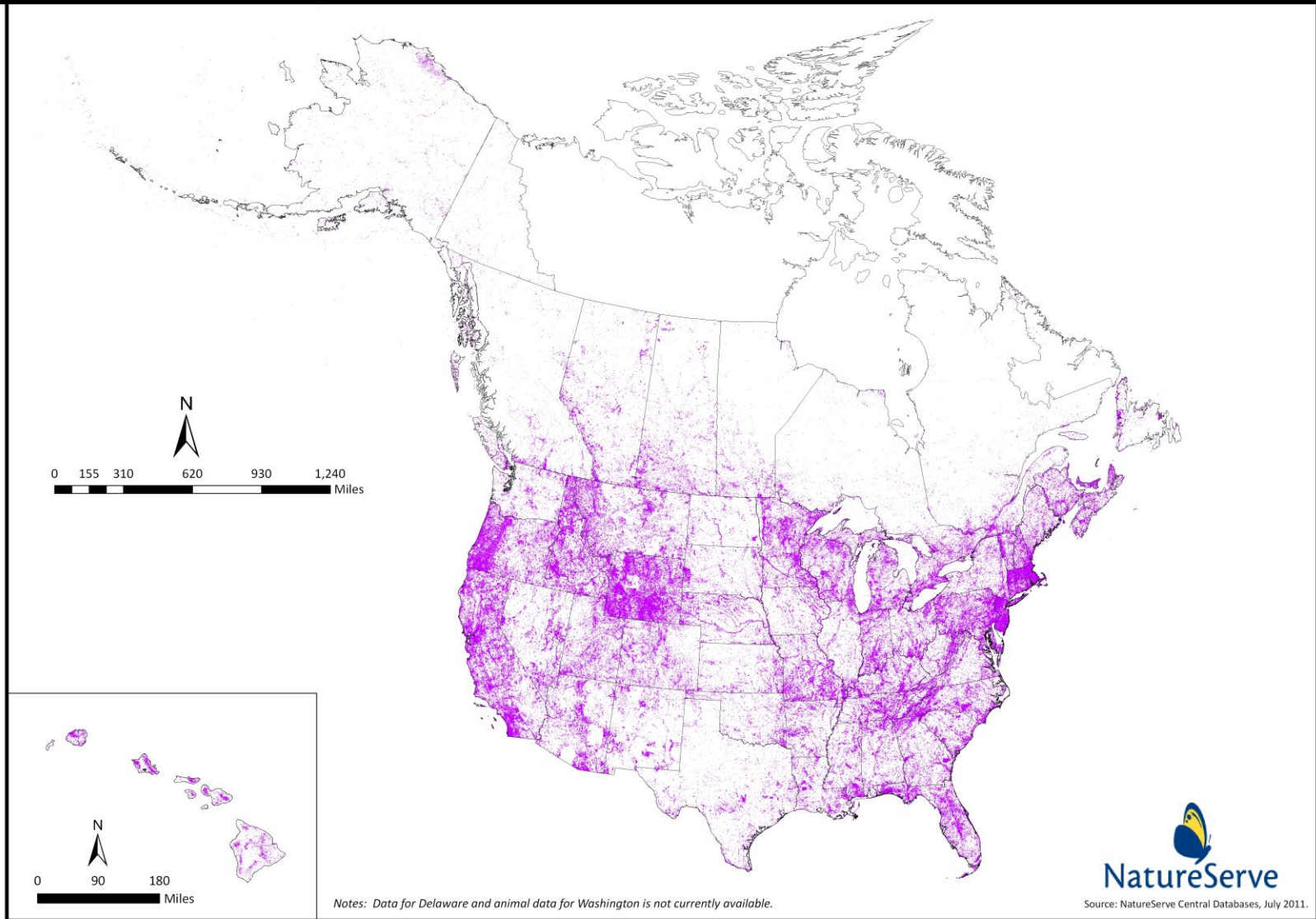


Photo by R. White



Florida Natural Areas Inventory

NatureServe's Data



NatureServe Conservation Status: Global (G) Ranks



*Eastern Prairie
White-Fringed
Orchid, G2G3
Listed Threatened*

GX - Extinct

GH - Possibly extinct

G1 - Critically imperiled

G2 – Imperiled

G3 - Vulnerable

G4 - Uncommon
but apparently secure

G5 - Widespread,
abundant and secure

Oak Toad, G5

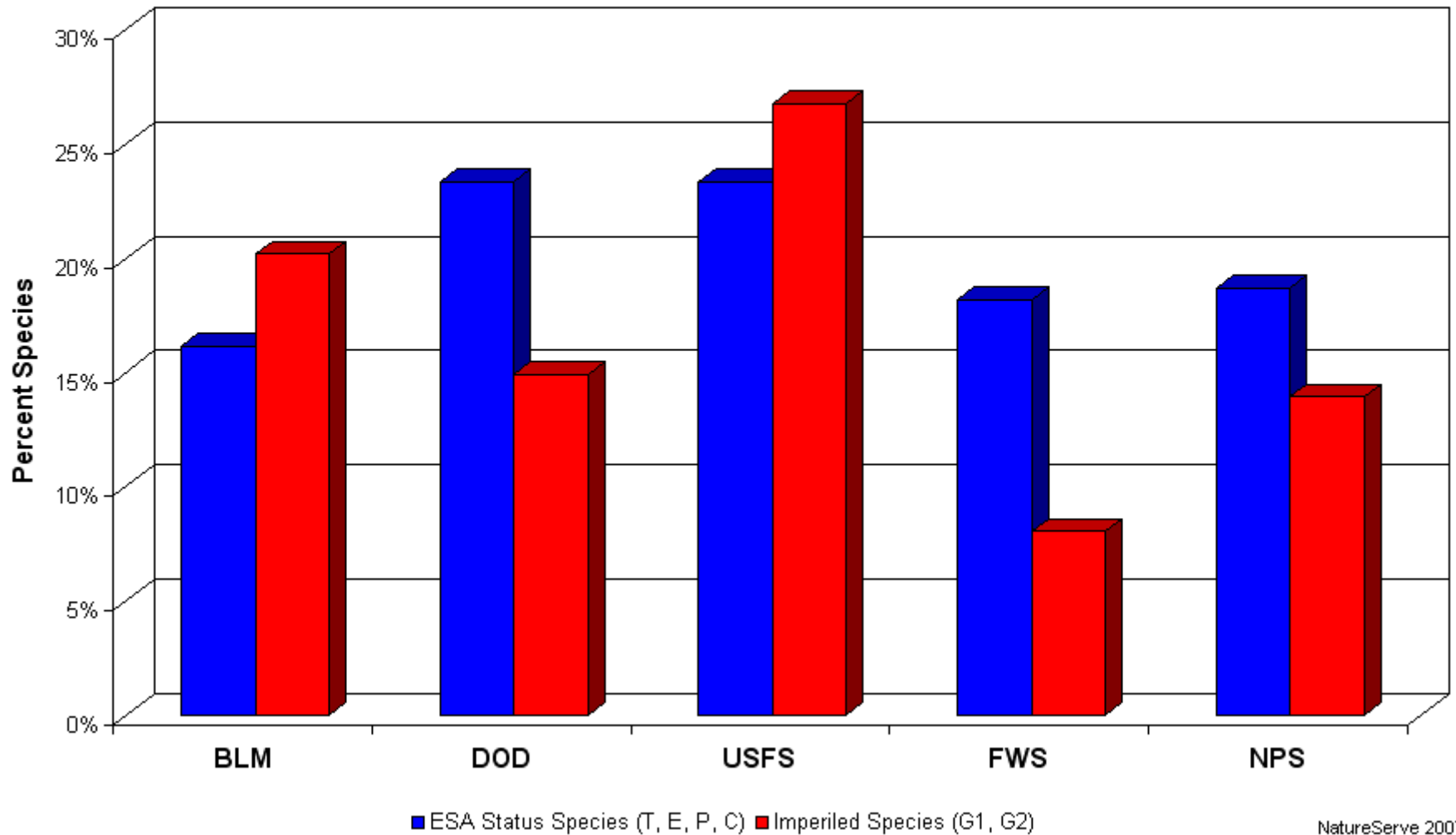


The Role of Federal Lands in Sustaining Biodiversity

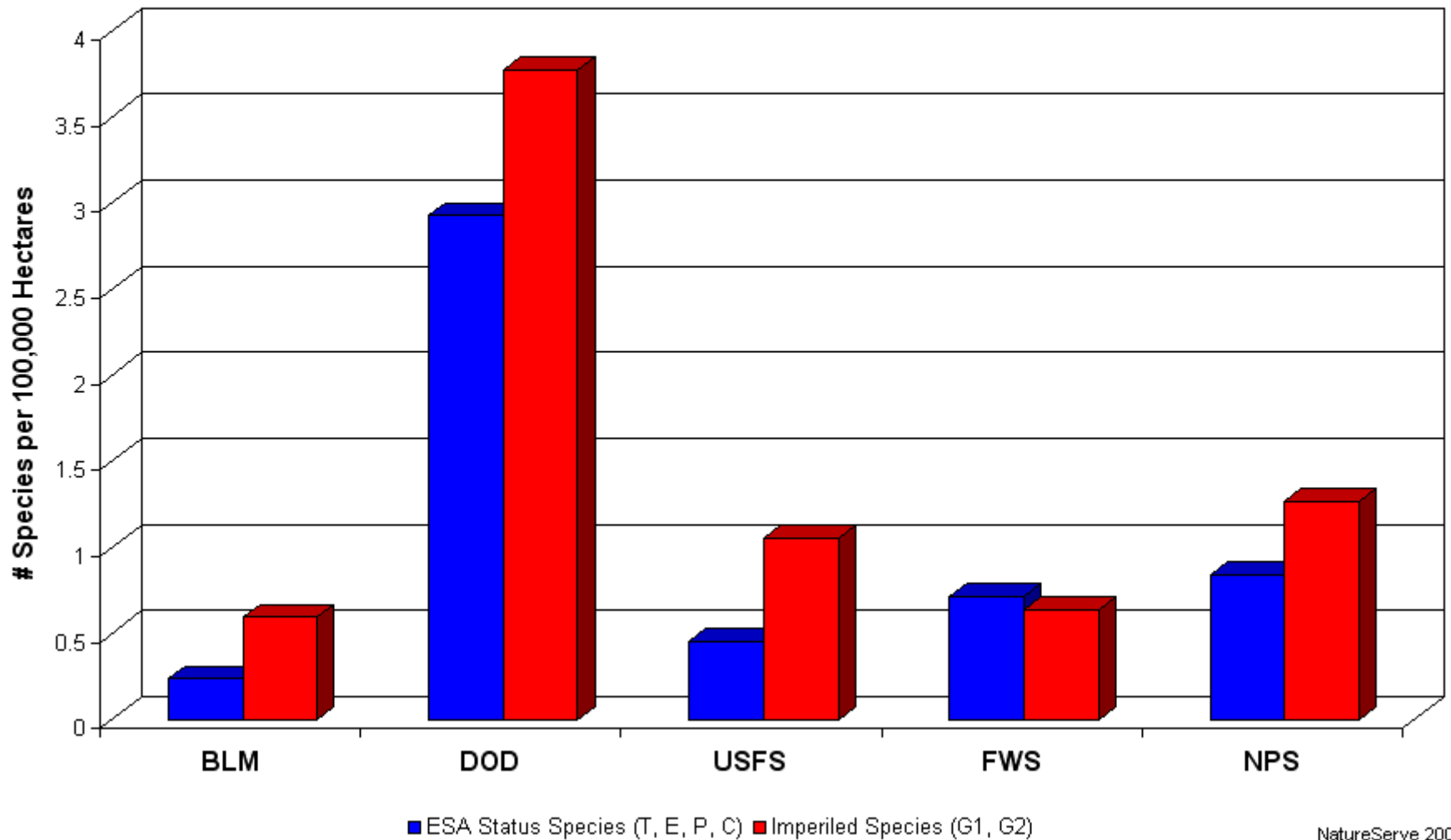
In 2007 the DoD Legacy Program funded NatureServe to conduct a GIS overlay analysis of current species locational data with coverages for federal lands. This enabled us to address the following questions:

- How many ESA status and imperiled species occur on lands of each of the major federal land management agencies? (DoD, BLM, USFS, FWS, NPS)
- How significant are different federal lands based on their density of endangered and imperiled species?
- Findings published in BioScience, April 2008, Vol. 58

Distribution of Endangered and Imperiled Species on Federal Agency Lands



Density of Endangered and Imperiled Species on Federal Agency Lands



Importance of Department of Defense Lands

- Military lands have a disproportionate importance to the nation's rare and endangered species
- High concentrations of imperiled and listed species on military lands
- Military lands well inventoried
- The maintenance of natural habitats and native biodiversity is important for providing realistic military training experiences

Listed Species Impacts on DoD Land Use



Species at Risk on DoD Lands

Project Goals

- Provide the DoD Legacy Program (project funder) with updated national scale analyses and expertise to support targeted species conservation efforts on DoD lands
- Focus on “Species at Risk”:
 - plant and animal species that are not yet federally listed as threatened or endangered under the Endangered Species Act, but that are federally designated as proposed or candidates for listing,
 - regarded by NatureServe as critically imperiled or imperiled (G1 or G2) throughout their range, or
 - birds that are regarded by NatureServe as vulnerable (G3) throughout their range or have an IUCN status of CR, EN, VU, or NT.

Species at Risk on DoD Lands

New Analysis - Current Species Data

- This 2014 analysis is an update of a previous analysis delivered in 2011.
- Prior to the 2011 update, this same analysis had been completed based on 2002 species location data.
- Makes use of the most current and accurate species status and location data: many changes since 2011.
- Increase of over 17,800 new species at risk population occurrences in NatureServe's databases since 2011.
 - 2014 – 87,700 occurrences
 - 2010 - 70,000 occurrences
 - 2002 - 45,000 occurrences

Species changes since previous analyses

- Total of 555 SAR identified in the 2014 analysis.
- Without birds that are vulnerable or have IUCN status, the total number of SAR stayed about the same (total of 531 Species at Risk on DoD lands in 2014; total was 519 in 2011).
- Even though numbers are similar there have been many changes in the species on the lists. Reasons may include:
 - New element occurrence added to dataset (over 17,800 new EOs)
 - More precise species location information
 - Changes in Federal U.S. ESA Status
 - Change in taxonomy – species split or lumped
 - Changes in species conservation status assessment ranks (Granks)

Species at Risk on DoD Lands

New Analysis - Current DoD Layer

- Use the most up-to-date DoD installation layer
- This analysis used military installation boundaries identified in the dataset “Military Installations, Ranges, and Training Areas” (11/21/2014) that is publically available from: <http://explore.data.gov/National-Security-and-Veterans-Affairs/Military-Installations-Ranges-and-Training-Areas/wcc7-57p3>
- Using ArcMap, all DoD installations from the 50 states represented in the polygon layer were buffered by 2 kilometers. The resulting buffered areas were used to conduct the GIS overlay of species occurrence data.

Species at Risk on DoD Lands

Methods and Approach

- Conduct a detailed GIS analysis, overlaying the most accurate available military installation boundaries for the U.S. with NatureServe's species locations for identified Species at Risk.
- Species at Risk will be considered to be located on a DoD installation if one or more element occurrence for a species resides completely or partially within the boundaries of an installation, or within a 2 km (1.24 mi) distance of a DoD installation.



Species at Risk on DoD Lands Products

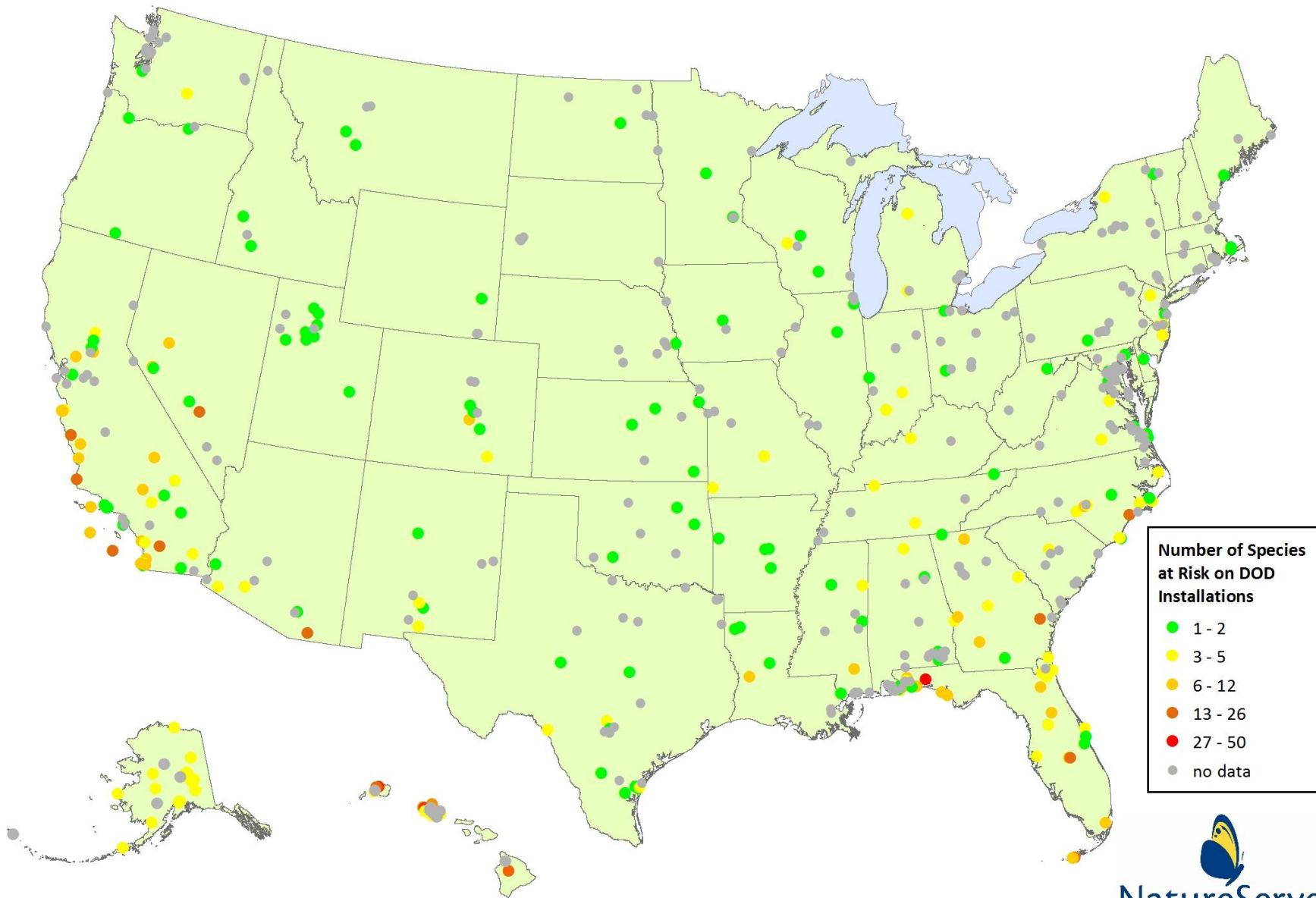
Products include:

- updated lists of Species at Risk by installation, for all installations included in the analysis
- updated maps, highlighting installations with the greatest numbers and densities of Species at Risk
- updated report and other updated summary figures and charts

Texas salamander, G1, Camp Bullis

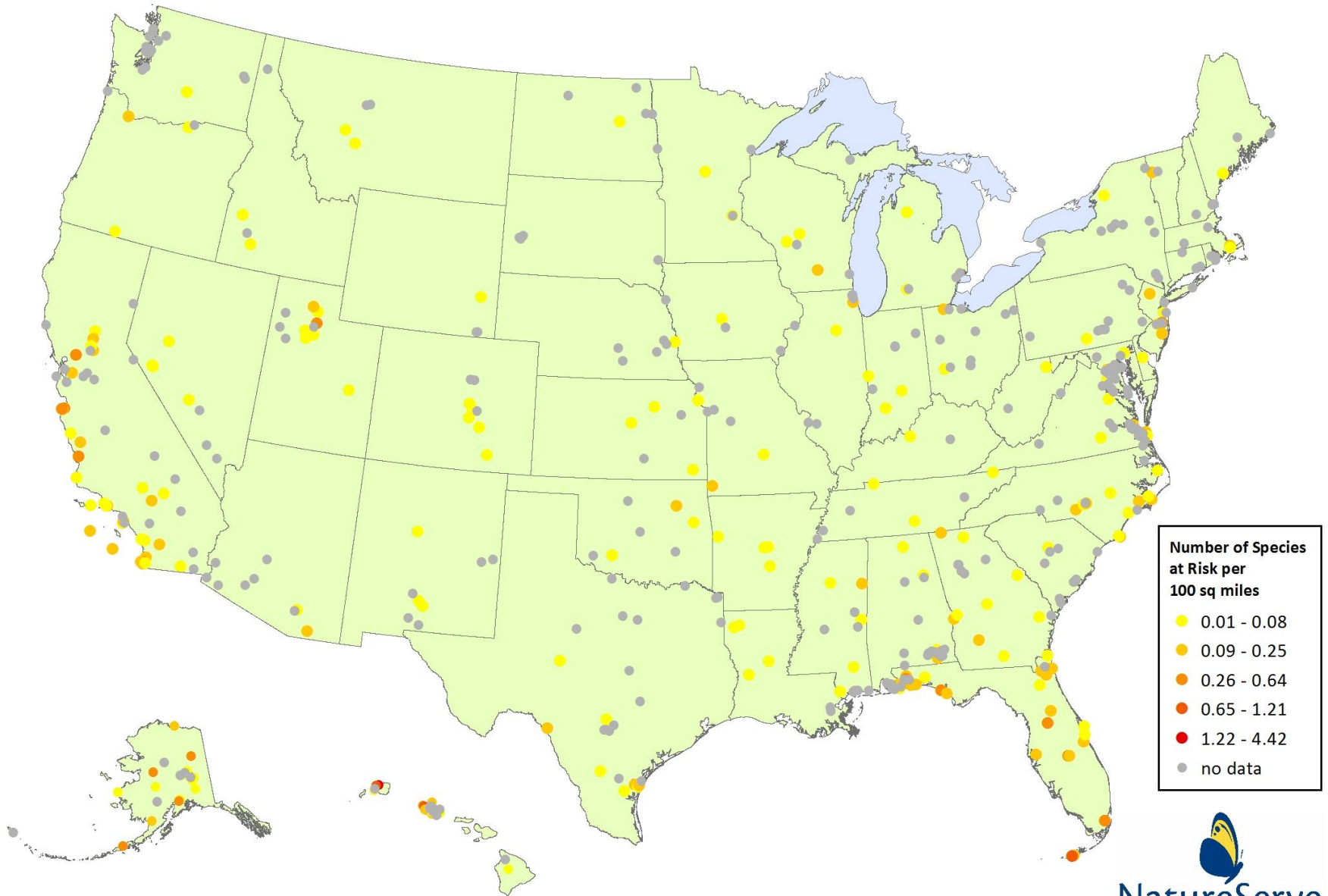


Number of Species at Risk on DOD Installations

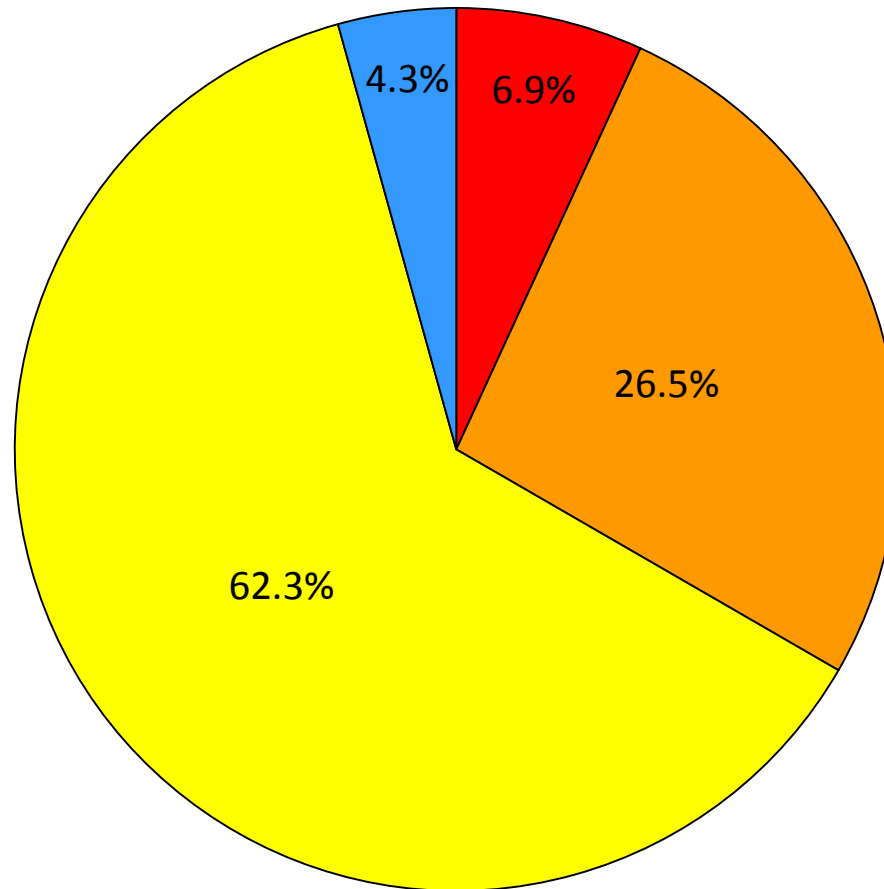


NatureServe
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Density of Species at Risk on DOD Installations

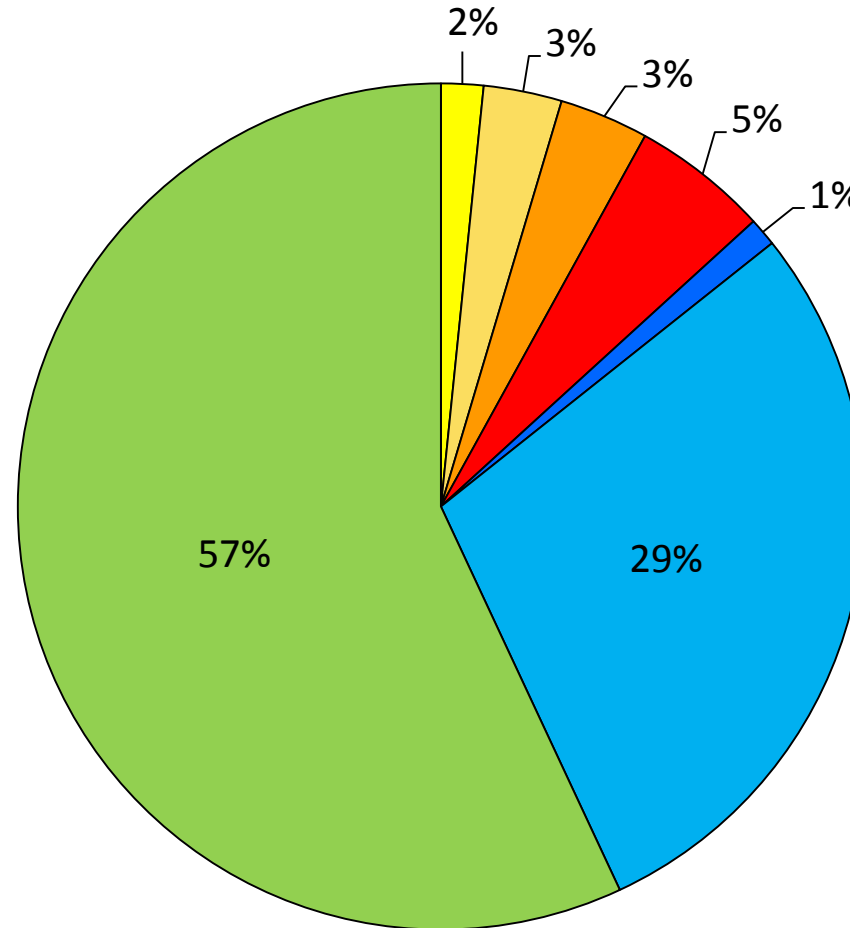


Percentage of Species at Risk by Status on DOD Lands



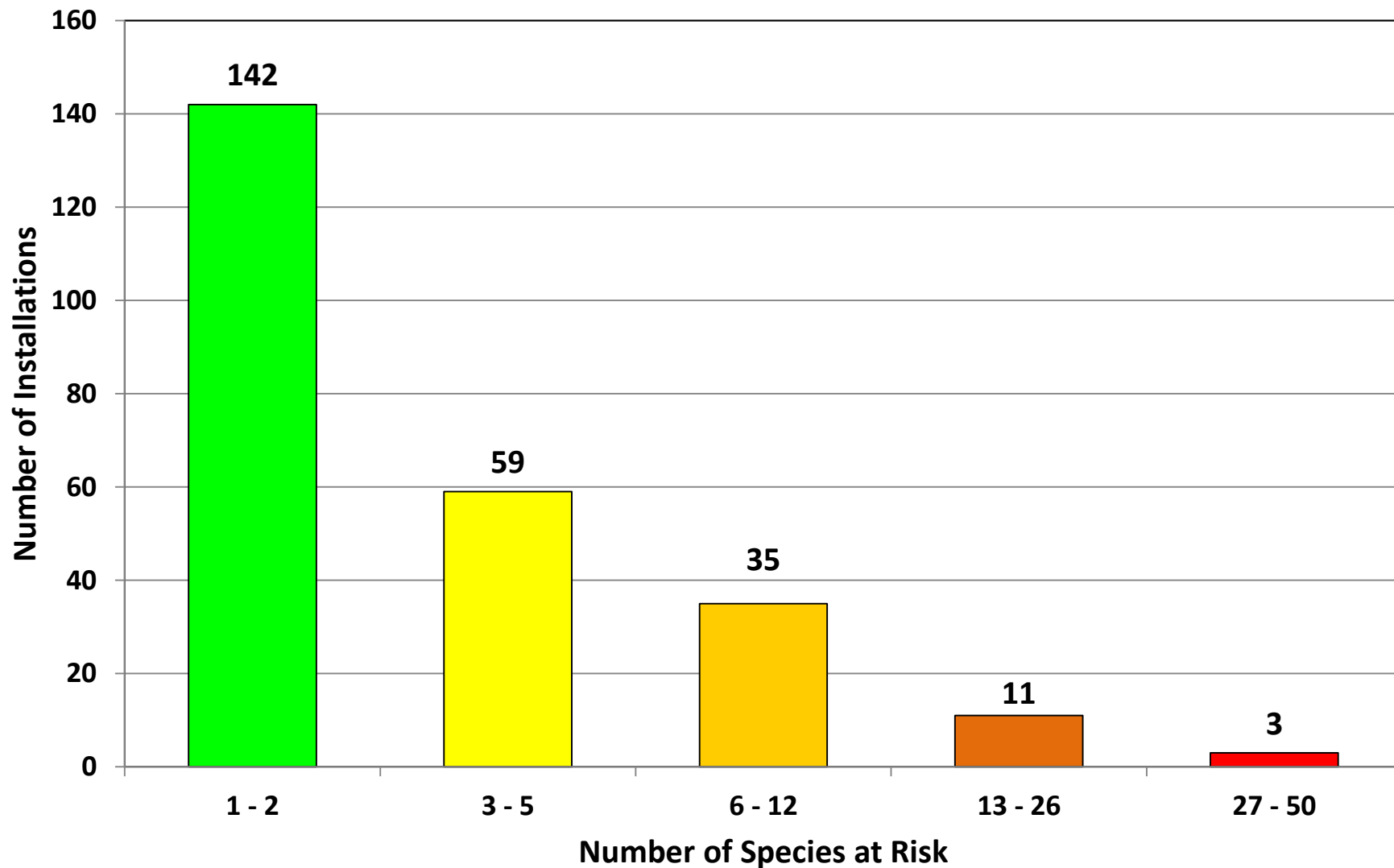
- Federal Candidate or Proposed
- Imperiled (G2 or T2)
- Critically Imperiled (G1 or T1)
- Vulnerable Bird (G3 or IUCN)

Percentage of Species at Risk by Species Group on DOD Lands

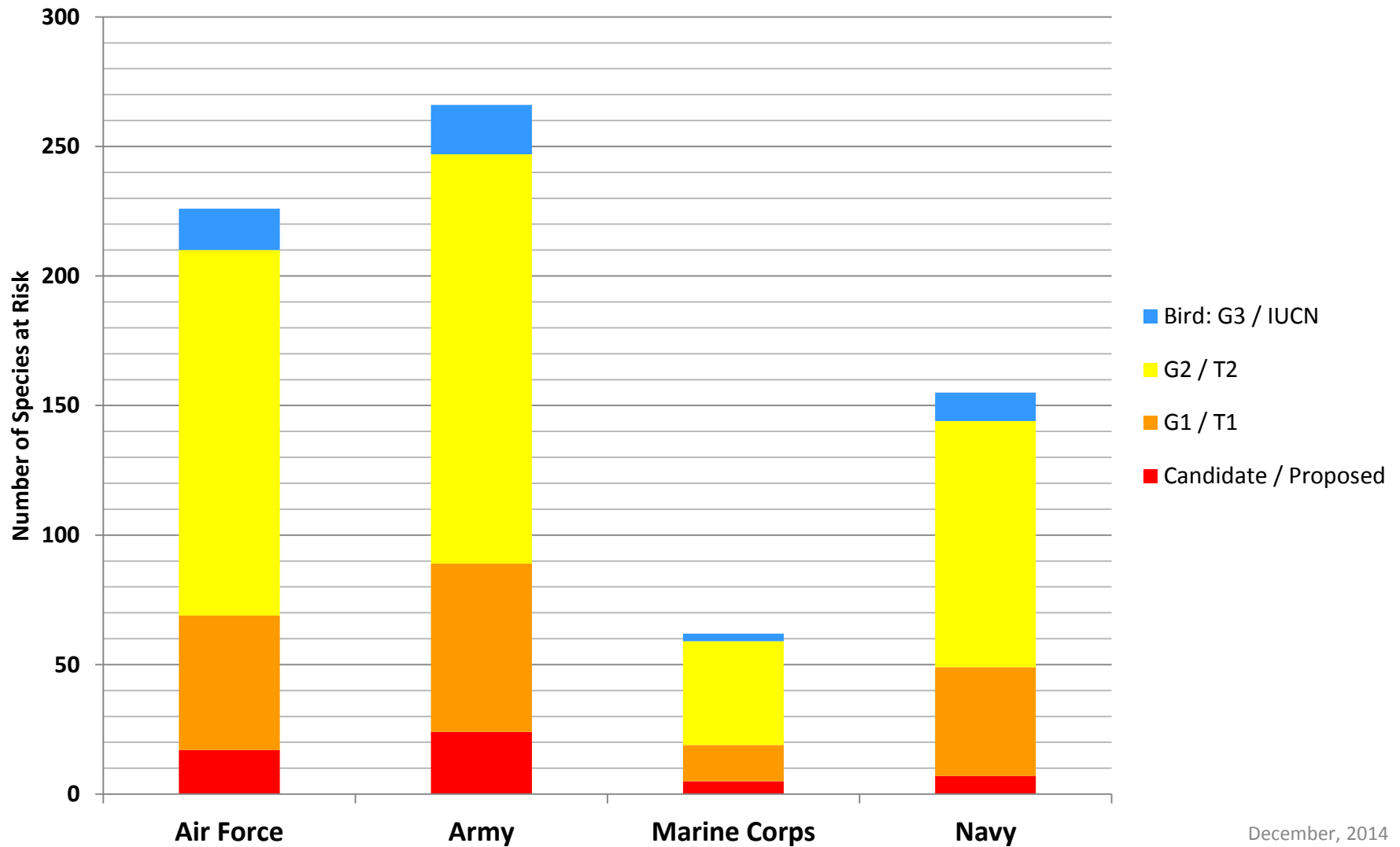


Amphibians Reptiles & Turtles Fish Birds Mammals Invertebrates Plants

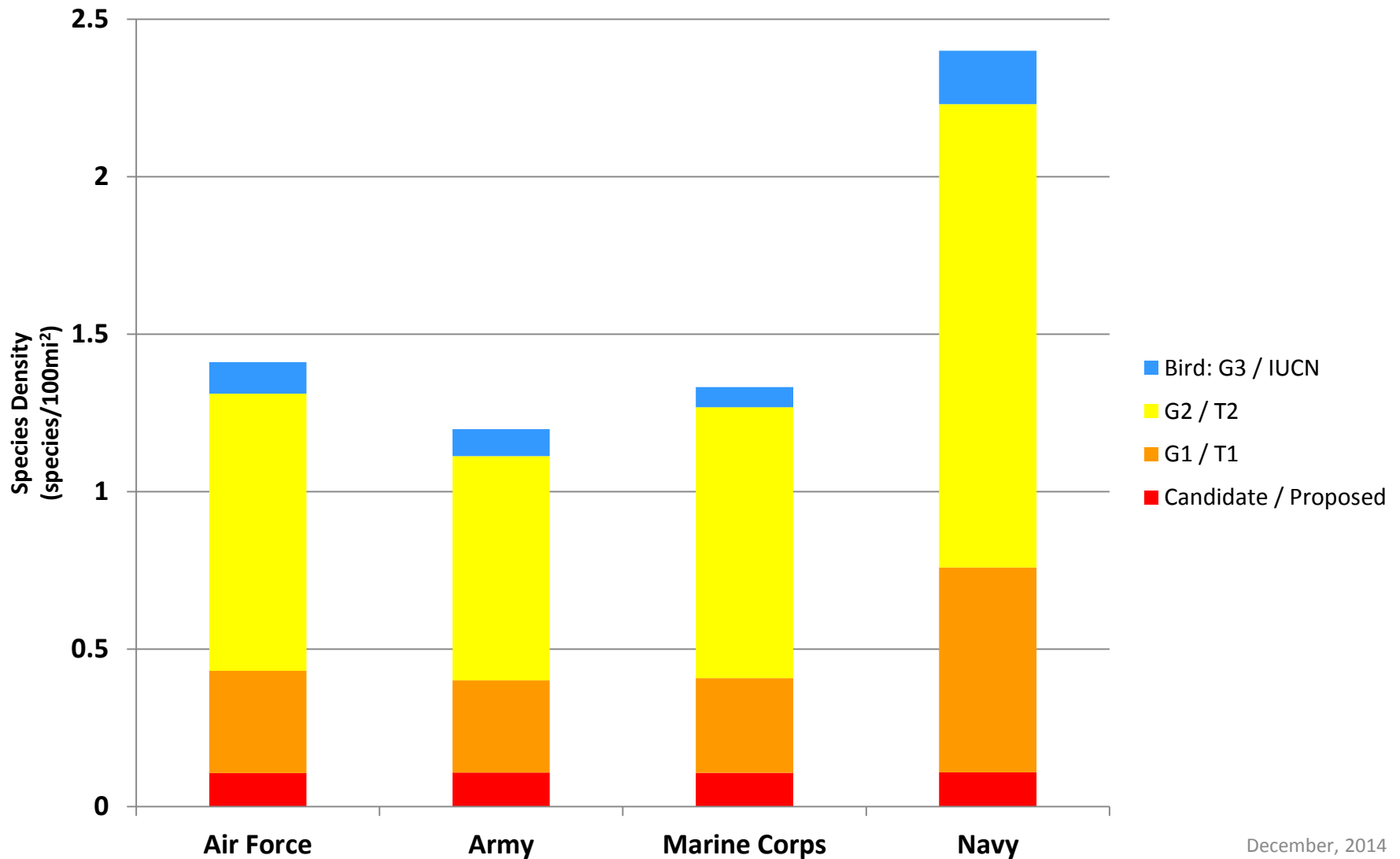
Number of SAR on Individual Installations



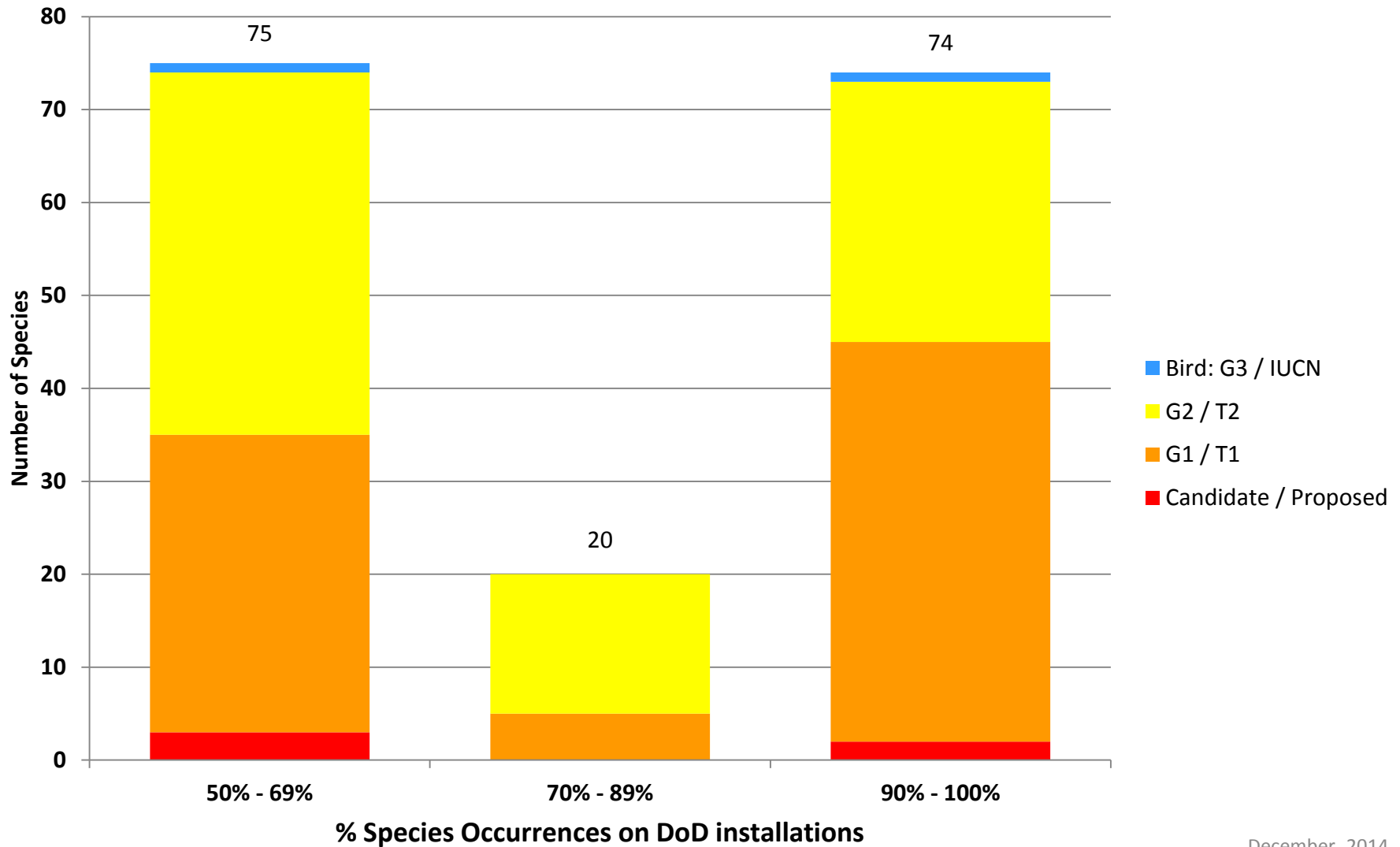
Number of Species at Risk by Military Service



Density of Species at Risk by Military Service



Species at Risk with 50% or more of all known occurrences on DoD Lands



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