

INTERMOUNTAIN REGION INVASIVE SPECIES AN ASSESSMENT OF RISK BY TAXA GROUP

Expansion of current invasive species in the Intermountain Region and likelihood of new invaders is recognized as a serious risk to health, ecosystem functions and economies. A species is considered to be invasive if it meets these two criteria:

1. It is nonnative to the ecosystem under consideration, and
2. Its introduction causes or is likely to cause economic or environmental harm or harm to human health.

The National Strategy and Implementation Plan for Invasive Species Management; the Intermountain Region Invasive Species Strategy; and the Intermountain Region Business Plan provide strategic goals, objectives and priorities. This sample assessment tiers under each of these guiding documents without reiterating their contents.

Risk – Natural Vulnerability or Human Intervention

Ecoregion discussions focus on naturally occurring environmental attributes. Natural barriers such as climatic variance or soil, water and vegetation features, etc. traditionally inhibited spread of a species from one ecological niche to another. However, human intervention destabilizes niche persistence and facilitates spread into new ecological sites. Thus, a comprehensive assessment of ecoregion risk provides limited value in determining pathway vectors and risk of invasion. More importantly, tracking human activities as major vectors and general susceptibility based on ecoregion attributes may prove beneficial to invasive species risk assessments.

Current mapped ecoregions assume a set of fixed attributes. However, many of those attributes, which historically provided barriers to species movement, have been compromised by human activities such as mining, logging, livestock production, urban sprawl; and more importantly corridors of significant human activities such as highways, airports, campgrounds, trails, etc facilitate species expansion. It is therefore imperative that a risk assessment must heavily weigh the human component over naturally occurring attributes found in ecoregions. Thus, this risk assessment **example** focuses mainly on human vectors of spread, availability of invasive species to that vector, and susceptibility of broad scale ecoregion attributes to new invasion.

Purpose

The purpose of this risk assessment is to (1) identify priority pathways, and (2) identify priority species and/or areas, and (3) provide an example which Forests might use as they develop a Forest IS Plan. It subjectively compares risk from the top twenty-five invasive

species currently found in the Intermountain Region as identified by the Regional Invasive Species Issues Team (RISIT).

Risk Assessment Criteria

The Intermountain Region embraces the concept of partnerships to maximize efficiency and effectiveness. An evaluation of risk must consider (1) direct impact on NFS lands, AND (2) indirect impact from partner lands with common vectors. Each criterion is awarded from one to ten points, ten being the highest value, to determine an overall score. The evaluation is based on the following criteria:

1. Aggressive nature
2. Health hazards
3. Significant vectors for spread
4. Political consideration
5. Infestation from non-NFS lands likely
6. High value areas threatened (wilderness, national parks, municipal watershed, un-infested areas, significant watershed, Scenic By-ways, etc.)
7. Effective management options (including prevention, control, restoration, etc.)
8. Potential for ecosystem disruption

INVASIVE SPECIES EVALUATION SCORECARD

| Species/Criteria | #1 | #2 | #3 | #4 | #5 | #6 | #7 | #8 | SCORE |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|
| TERRESTRIAL | | | | | | | | | |
| Leafy Spurge | 8 | 3 | 8 | 7 | 10 | 10 | 7 | 7 | 60 |
| Rush Skeletonweed | 10 | 0 | 10 | 10 | 10 | 10 | 3 | 5 | 58 |
| Yellow Starhistle | 8 | 2 | 7 | 7 | 10 | 4 | 7 | 7 | 52 |
| Knapweed Species | 7 | 3 | 6 | 5 | 10 | 2 | 7 | 7 | 47 |
| Salt Cedar | 4 | 0 | 3 | 10 | 4 | 8 | 8 | 10 | 47 |
| Cheatgrass | 6 | 5 | 2 | 10 | 5 | 1 | 1 | 10 | 40 |
| Musk Thistle | 7 | 2 | 3 | 1 | 7 | 1 | 10 | 2 | 33 |
| Scotch Thistle | 7 | 2 | 3 | 1 | 7 | 1 | 10 | 2 | 33 |
| Dyer's Woad | 5 | 0 | 5 | 2 | 6 | 2 | 6 | 3 | 29 |
| Dalmatian Toadflax | 6 | 0 | 2 | 2 | 6 | 3 | 4 | 4 | 27 |
| AQUATIC | | | | | | | | | |
| Eurasian Water Milfoil | 7 | 9 | 8 | 10 | 10 | 10 | 8 | 10 | 72 |
| Zeb/Quag Mussels | 10 | 0 | 10 | 8 | 8 | 8 | 3 | 9 | 56 |
| New Zealand Mussels | 10 | 0 | 10 | 10 | 10 | 10 | 5 | 10 | 65 |
| Whirling Disease | 6 | 8 | 6 | 8 | 5 | 9 | 3 | 6 | 51 |

| | | | | | | | | | |
|--------------------------------|---------|----|----|----|----|----|---|----|----|
| Chytrid Fungus | 7 | 9 | 6 | 1 | 7 | 8 | 3 | 6 | 47 |
| Didymo | 5 | 0 | 6 | 2 | 5 | 9 | 3 | 7 | 37 |
| Brook Trout | 8 | 0 | 1 | 9 | 0 | 9 | 9 | 1 | 37 |
| Brown Trout | 8 | 0 | 1 | 9 | 0 | 9 | 9 | 1 | 37 |
| Red-lipped Snail | unknown | | | | | | | | |
| Chronic Wasting | unknown | | | | | | | | |
| INSECTS & PATHOGENS | | | | | | | | | |
| White Pine Blister Rust | 10 | 9 | 10 | 9 | 10 | 10 | 2 | 10 | 70 |
| Gypsy Moth | 10 | 8 | 10 | 10 | 10 | 10 | 8 | 9 | 75 |
| Banded Elm Bark Beetle | 2 | 2 | 1 | 1 | 5 | 6 | 0 | 1 | 18 |
| Dutch Elm Disease | 6 | 7 | 7 | 1 | 1 | 9 | 5 | 1 | 37 |
| Japanese Beetle | 10 | 10 | 10 | 10 | 10 | 10 | 8 | 10 | 78 |

Scorecard Results

Based on this scorecard the top ten I.S. priorities would include:

1. Japanese Beetle (78)
2. Gypsy Moth (75)
3. Eurasian Water Milfoil (72)
4. White Pine Blister Rust (70)
5. New Zealand Mud Snails (65)
6. Leafy Spurge (60)
7. Rush Skeletonweed (58)
8. Zeb/Quag Mussels (56)
9. Yellow Starthistle (52)
10. Whirling Disease (51)

Caution should be used as each Forest identifies specific criteria for their own assessment. In the case of this example, historic invasive species investments that could be lost would include control of:

Dalmatian Toadflax
Yellow Toadflax
Dyer's Woad
Spotted Knapweed
Diffuse Knapweed
Squarrose Knapweed
Russian Knapweed
Musk Thistle
Scotch Thistle

Orange Hawkweed
Meadow Hawkweed
Common St. Johnswort
Sulphur Cinquefoil
Oxeye Daisy
Black Henbane
Houndstongue
Canada Thistle
Salt Cedar
Hoary Cress

In addition, a Forest may **not** be aligned with partner programs and State laws and could lose important support and volunteer participation which traditionally leverage FS funds at 3:1 or greater. It is important to discuss and coordinate these priorities with partners as the Forest Risk Assessment is developed.