FACT SHEET: HABITAT FRAGMENTATION

October 9, 2015

IMPACTS OF HABITAT FRAGMENTATION

Many wildlife species are negatively affected by vegetation removal resulting in interruptions or breaks in otherwise large areas of continuous habitat. Although "fragmentation" is often associated with forest vegetation, other environments including grasslands, shrublands, and wetlands can also be negatively impacted by fragmentation, or vegetation removal.

Some vegetation removal may seem unimportant and minimal to humans but it may be critical to small animals. For example, some salamanders spend their entire adult lives within a 10-ft radius area. Even a small human foot-trail can hamper their search for food, water, and shelter. Several wildlife species have been documented to avoid previously inhabited areas once the vegetation becomes fragmented, suggesting that the habitat no longer meets their survival needs.

Some wildlife species are more sensitive to habitat fragmentation than other species. In general, those species most sensitive to fragmentation are becoming increasingly rare world-wide and are more likely to be listed as threatened or endangered. As more wildlife habitat is lost and fragmented, remaining large areas of continuous habitat become more important to the conservation of rare species and to the maintenance of now common species' populations.

Habitat fragmentation can have many additional negative impacts on previously continuous habitat. For example, fragmenting or removing vegetation from large areas of continuous habitat can change the temperature and humidity of previously continuous parcels, resulting in changes to plant and wildlife populations. Roads and trails increase the spread of undesirable, invasive, non-native plant species as vehicles and humans accidentally transport seeds on tires and shoes. These invasive plants can then out-compete native plants and change the overall habitat. Roads not only fragment habitats and spread invasive plants but also increase the risk of vehicle collisions with wildlife. Predation risk is also higher in fragmented areas as predators often use vegetation edges for hunting, making areas with more edges more dangerous for prey species not adapted to edge habitats.

HUMAN ACTIVITIES THAT FRAGMENT HABITAT

Habitat fragmentation occurs with any interruptions or breaks in otherwise large areas of continuous habitat. Removal/replacement of native vegetation, road construction, development (including the erection of communications towers and guy wire lanes), agriculture, tall fences, and artificially changed water levels have the potential to fragment habitat.

CHOICES THAT CAN MINIMIZE HABITAT FRAGMENATION

Tower constructors and operators have many opportunities to reduce or prevent fragmentation and vegetation removal.

- Develop currently disturbed sites such as agricultural fields where possible, instead of changing natural, native vegetation.

- Use existing roads whenever possible, instead of creating new roads. Where a new road is necessary, it might still be possible to minimize its impact. For example, in forested habitats, the tree canopy might be allowed to remain continuous over communications tower service roads, thereby minimizing changes in forest temperature and sun exposure.

- Contact regional and local natural resource agencies, as they may have additional site-specific suggestions and ideas to reduce the habitat fragmentation impacts of a project. For example, certain road surfaces reduce the potential for vehicle collisions with salamanders, frogs, and snakes. These collision issues could be more important at some sites than at others. In addition, some regions struggle with particular invasive species more than other regions. A local government natural resources agency would be more likely to have site-specific information.

- During and after construction activities, encourage the regrowth of native plant species that previously grew on the site. This can be done by seeding cleared areas with the seeds of native species. Specifically, guy wire lanes and service roadsides can be planted with low maintenance native shrubs, grasses, and other plants that not only exclude taller, less manageable vegetation but also reduce maintenance costs and provide habitat for butterflies and other wildlife. In addition, the spread of invasive plant species can be inhibited by washing the wheels of construction vehicles (http://www.fs.fed.us/eng/pubs/pdf/05511203.pdf, Fig. 1).

Figure 1. Flexible mat type of vehicle wheel wash, from http://www.fs.fed.us/eng/pubs/pdf/05511203.pdf

Sources of additional information:

http://www.fs.fed.us/eng/pubs/pdf/05511203.pdf

http://www.fws.gov/birds/documents/HabitatLoss.pdfhttp://www.stateofthebirds.org/

http://www.conbio.org/images/content_publications/Chapter5.pdf

http://www.els.net/WileyCDA/ElsArticle/refId-a0021904.html

KEY WORDS: fragmentation, vegetation removal, habitat, habitat loss, vegetation, mowing, roads, project planning, invasive species