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**R1 NEPA Strike Teams GIS Analysis Report**

Project Name: South Otter

Date: 2021-04-15

Date Requested By: South Otter IDT

GIS Request Number: None

Requesting Resource: Transportation

Requesting Specialist: IDT

GIS Specialist: Jeff Erwin

**Request: Provide a detailed report on the development of the South Otter Project route system**

Data Locations: South Otter Proposed Action Routes: T:\FS\NFS\Custer\Project\Ashland\SouthOtter\GIS\Layerfile\ProposedAction\SOPARoutes.lyr

Background: Project was taken over by Jeff Erwin in September of 2020. An existing proposed action was created but lacked temp/haul routes and did not accurately reflect existing conditions on the landscape. An INFRA pull for both roads and trails was done and joined together to create a routes layer. Temp routes were then added to the featureclass and haul routes were designated by using a “flow of wood” featureclass from Nate Motzko. After further review, it was discovered that several roads had trails the coincided with each other. To correct this Forest staff suggested an INFRA pull from MVUM Trails and replacing roads that had a ROUTE\_STATUS of CV – CONVERTED with trails that had a designation of 5 or 6 in the SYMBOL field. This process did replace a good amount of CV – CONVERTED roads, but not all. At this point the routes layer was symbolized based upon RoadStatus, ROUTE\_STATUS, and HaulRoute. The total routes for the project at this point including proposed temp routes is 1248. Off the 1248 routes there are 811 that have no designation to determine if they are open year long, seasonal or closed.

The routes layer was then analyzed an adjusted based upon a message from Graham Neale, Project Wildlife Bio:

“This is based on 3Mile and the lit. For existing condition District-wide, Admin/private and seasonal closures are modeled as Closed (and any additional permanently closed roads if they exist); during project within the EAUs, Admin/private, any system haul routes, and temp roads are modeled as Open due to higher level of use (even tho some are seasonally closed to public); after project, back to Admin/private, seasonal closures are Closed, with temp roads gone.

Based upon the above criteria it was possible to determine the route status based upon the proposed action. This may not be the route status portrayed within the Forest Authoritative data and is only described to facilitate the proposed action for the South Otter Project.

For informational purposes, the original ruleset for routes concerning Elk is as follows:

T:\FS\Reference\GeoTool\r01\Toolbox\NRGG\_TG\_14-2\_EA\_Elk.v1.pdf

Elk Secure Areas

Elk security is a route (roads and trails) based analysis. A secure area is defined as an area at least 250 acres and at least one half-mile from an open motorized route. Open motorized routes during the time period 9/1 to 12/1 was used in this analysis. The open routes are buffered by one half-mile and are designated as not-secure (secure = no) areas. The remaining areas that are greater than 250 acres are designated as secure areas (secure = yes).

Elk Habitat Effectiveness

Habitat effectiveness is a route density analysis. It is based on motorized routes open during the time period May 16 – September 1. This model produces a feature class that includes route density classes 0 - .1 mi/sqmi, .1 – 1.5 mi/sqmi, 1.5 – 2.0 mi/sqmi, >2.0 mi/sqmi. The more densely the routes occur, the higher the route density value. This indicates areas that are not effective big game habitat. The traditional density value is the actual length of routes per summary unit divided by 640 to convert the value into square miles. This value is obtained by the following equation: ([RouteLength] / [UnitAcres]) \* 640.