Scoping Document

Project: Development of Remote Sensing Assessment and Monitoring Methods for Gunnison Sage-Grouse Habitat

Contacts:

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Management Need

The Gunnison sage-grouse is a candidate for listing under the Endangered Species Act. Major threats to the species are habitat loss and fragmentation from human infrastructure (residential developments, roads, etc.), and non-native plants. As such, it is becoming increasingly important to have accurate and up-to-date information about land cover and vegetation condition. Researchers have identified three distinct seasonal habitats: nesting, summer-fall (includes brood-rearing), and winter. Researchers have also identified specific habitat guidelines for these seasonal habitats. Habitat capability and quality can be quantified based upon the canopy cover and height of sagebrush, graminoids and forbs. Identifying specific seasonal habitats and monitoring all habitats in the Gunnison Basin with field crews is cost prohibitive.

Project Objectives

Project cooperators expressed a much greater level of need than could be realistically addressed with the available resources for this collaborative effort. However, the most important information requirements were identified. The primary objective of this project is to investigate the feasibility of using newly developed software (ERDAS eATE) to derive vegetation height and canopy cover information from stereo photography. The derived canopy surface model (CSM) could fill an important information gap in characterizing sage-grouse habitat. A secondary objective, if time and funding allow, is to map vegetation types including shrub, herbaceous, and bare ground. Another possible endeavor is to separate black sagebrush (*Artemisia nova)* from other shrub types (mountain and Wyoming big sagebrush) using the height and possibly spectral data. Additional needs were identified but fall outside the scope of this project. If appropriate, a follow-on proposal that addresses these additional needs could be submitted to the Remote Sensing Steering Committee (RSSC) next year.

Constraints

The RSSC allocated 13 weeks of RSAC staff time to this project. The forest is acquiring new stereo aerial imagery later this year, but may not be available for use until early 2013. Interagency project partners are considering the pursuit of independently securing funds for acquiring stereo aerial imagery over the entire Gunnison Basin – beyond Forest Service administrative boundaries.

Next Steps

Once agreement is reached concerning the project scope, RSAC will develop a project plan. Meanwhile, RSAC and other collaborators will continue to compile the existing datasets, as well as explore the available methods for processing the data. Preliminary project activities will include processing a subset of aerial photography acquired in 2005 to demonstrate the ability to extract shrub height. Existing Lidar data would also be processed. Project cooperators will assemble existing data sources and geospatial data products for the Gunnison Basin study area and make them available to RSAC.

Gunnison Veg. Mapping/Habitat Monitoring Project Overview

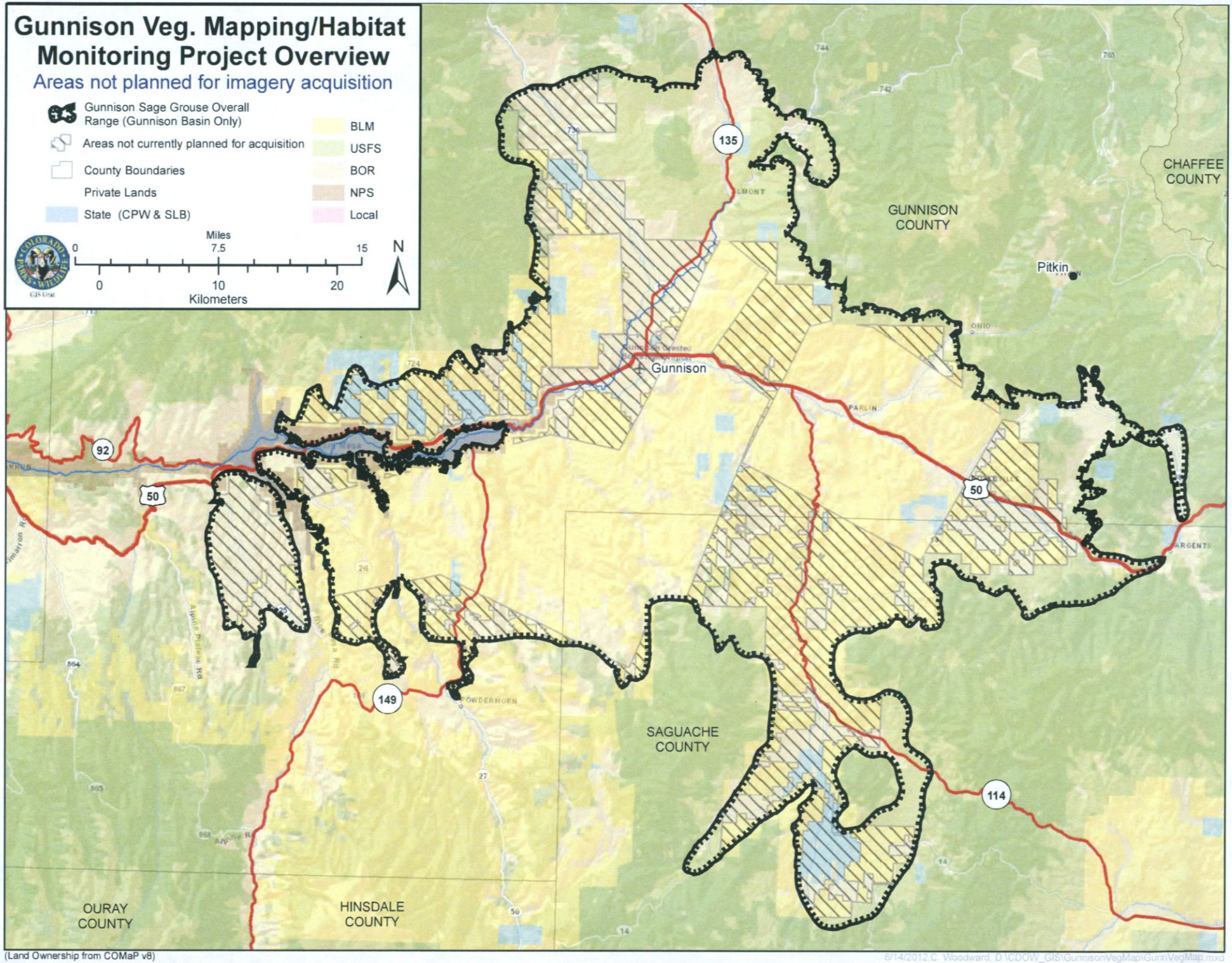
Areas not planned for imagery acquisition

- Gunnison Sage Grouse Overall Range (Gunnison Basin Only)
- Areas not currently planned for acquisition
- County Boundaries
- Private Lands
- State (CPW & SLB)
- BLM
- USFS
- BOR
- NPS
- Local

Miles: 0, 7.5, 15

Kilometers: 0, 10, 20

N



(Land Ownership from COMaP v8)

8/14/2012 C. Woodward, D:\CDOW_GIS\GunnisonVegMap\GunnVegMap.mxd