



MOOSE HABITAT & POPULATION MANAGEMENT & RESEARCH

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Outline

- Moose Habitat Requirements
- Guiding Principles for Forest Development in moose habitat
- Moose Population Management
- Moose Research – regionally & provincially

Moose Biology

A couple key points

- Large ungulates that require ~30lbs (dry; ~45 wet) forage/day - primarily shrub browsers, but do eat sedges, grasses and aquatic plants in spring/summer
 - Result: must find, eat & digest food quickly. Disruption may be problematic
 - negative energy balance in winter as forage quality/quantity reduced, locomotion & thermoregulation costs higher = fat storage important to offset
- Adapted for northern climates. Moose easily experience heat stress:
 - Winter: $>-5^{\circ}\text{C}$
 - Summer: $>14^{\circ}\text{C}$



Basic Habitat Requirements

- All seasons – forage & cover in close proximity. Low levels of disturbance
 - Moose are considered an “edge” species
 - If no cover nearby (i.e., large young settings) habitat generally avoided

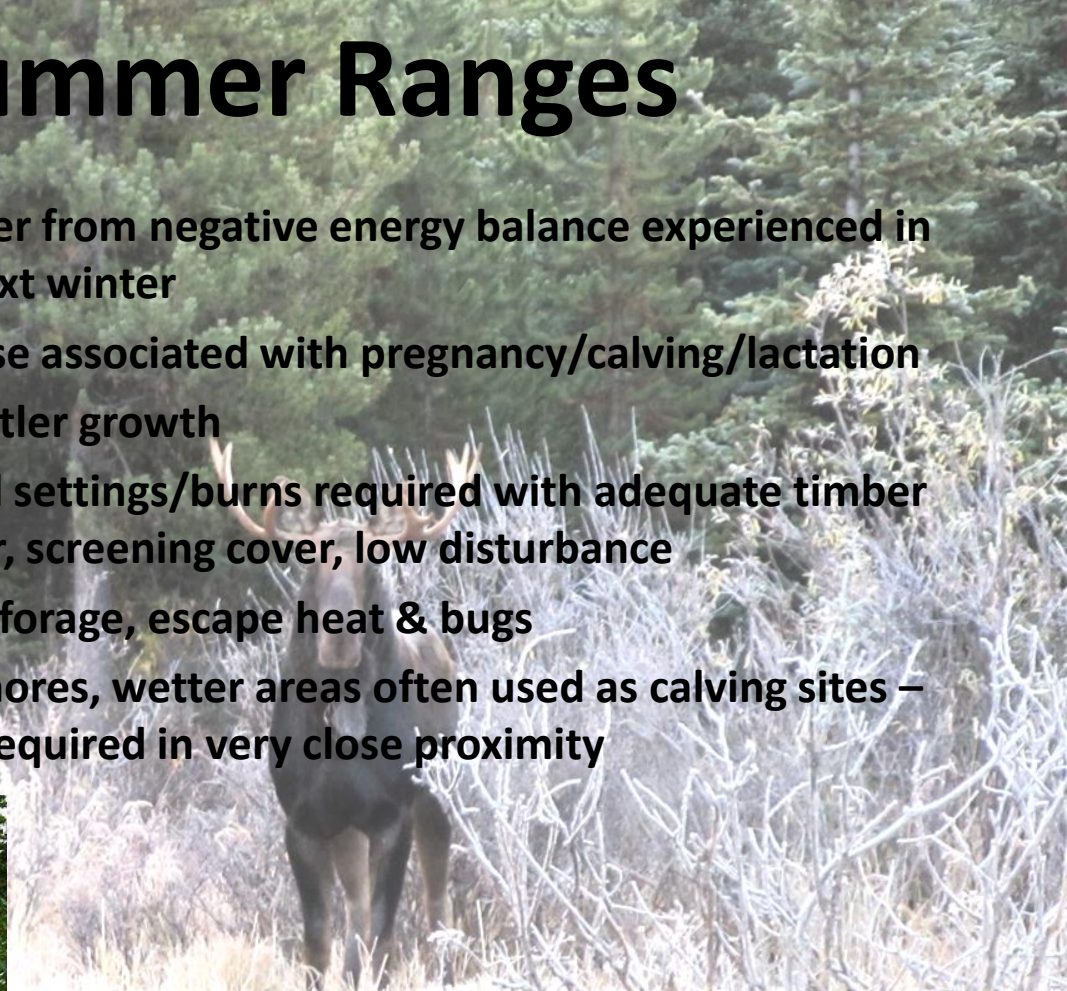


Winter Range

- of critical importance for moose survival and productivity
- shrub dominated (willow is preferred) riparian complexes, deciduous stands, logged settings & burns with abundant shrub growth
- adjacent coniferous stands (interior conditions) for:
 - cover required within max 400m
 - thermal cover - protection from temp. extremes
 - Security cover - screening from humans/predators
 - interception cover - reduced snowpack for locomotion & forage availability
 - Closed canopy especially important in late winter/early spring
- low levels disturbance

Spring/Summer Ranges

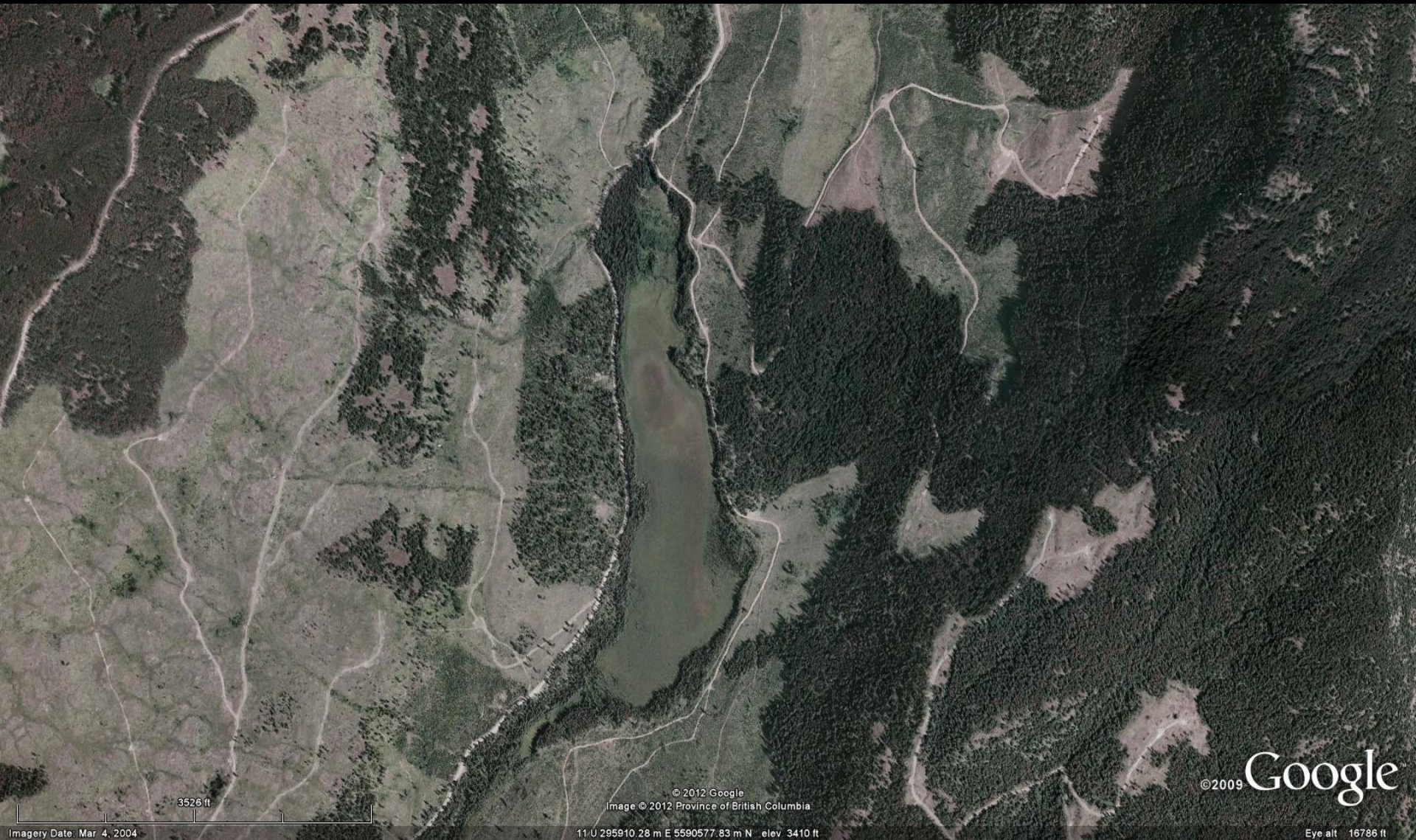
- Need productive habitat to recover from negative energy balance experienced in winter and put on reserves for next winter
 - Cows – additional expense associated with pregnancy/calving/lactation
 - Bulls – period of rapid antler growth
- Again, productive riparian/logged settings/burns required with adequate timber reserves nearby for thermal cover, screening cover, low disturbance
- Aquatic habitats often selected – forage, escape heat & bugs
- Riparian complexes, pond/lake shores, wetter areas often used as calving sites – low disturbance, cover & forage required in very close proximity



Potential effects of significant forest development

- **Complicated - varies spatially, temporally and with intensity**
- **Direct & indirect effects**
- **Logging creates forage = positive effect**
- **To what extent is that counteracted?**
- **Examples from around the region**

Inappropriate road locations, inadequate buffering,
excessive road density, unmanaged access



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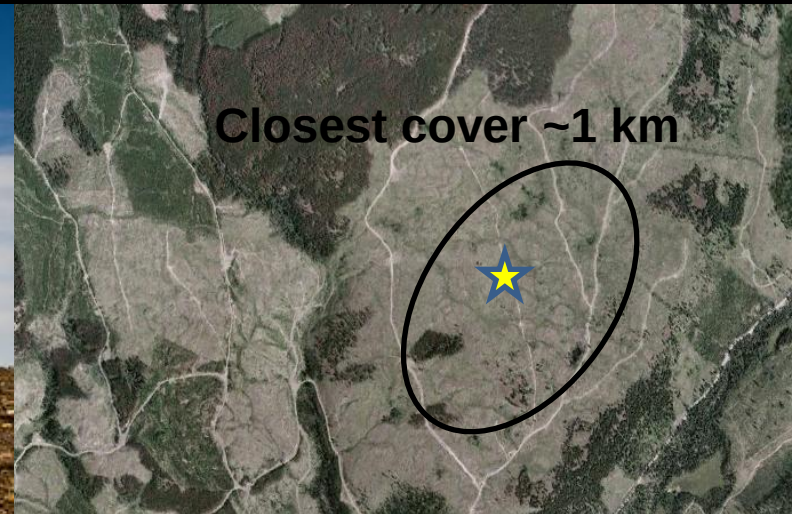
11 U 295910.28 m E 5590577.83 m N elev 3410 ft

Eye alt 16786 ft

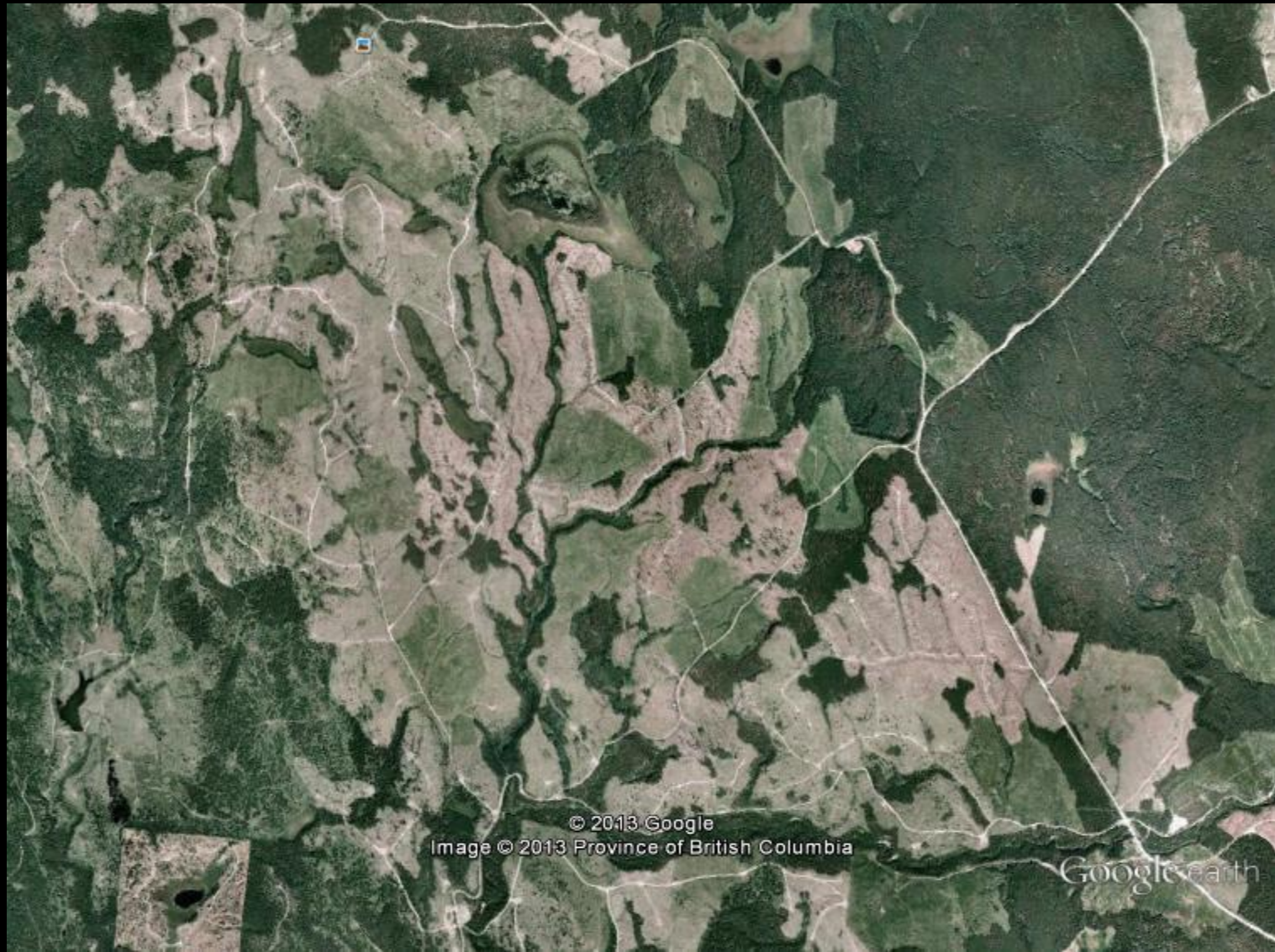
3526 ft

Imagery Date: Mar 4, 2004

Insufficient cover, excessive road density



Insufficient cover, unmanaged access, insufficient screening, no connectivity b/w patches

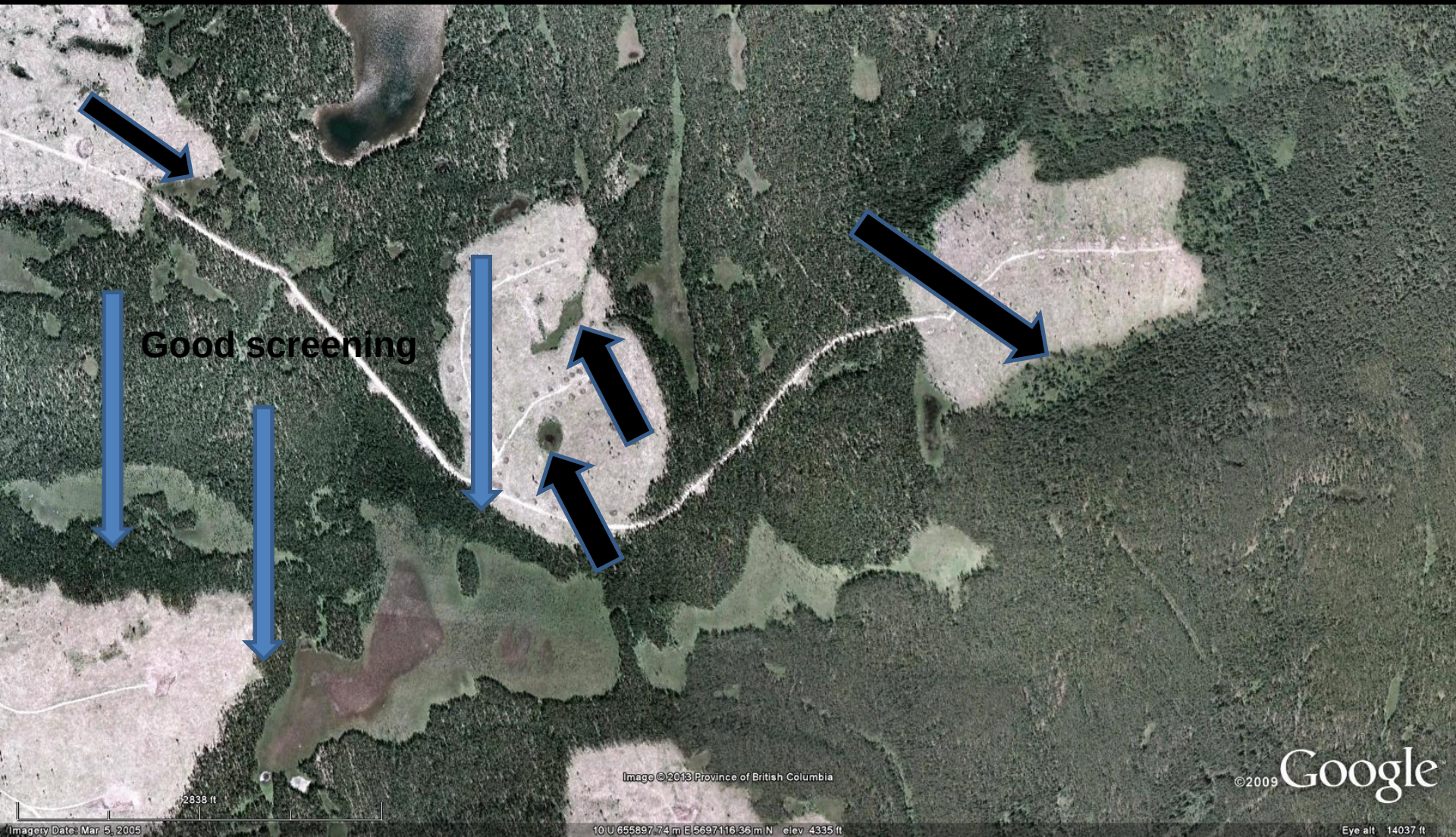




Inadequate buffering, inappropriate road locations, unmanaged access



No screening & Good Screening



Many examples of insufficient screening; unmanaged access to key features



Guiding Principles for Forest Development in Moose Habitat

- Thermal/snow interception (mature timber cover – stand age >60 yrs and canopy closure >40-65%) and security cover (>5m vegetation height) needs to be dispersed across the landscape. Patches need to be large enough to provide interior forest conditions (>3-5ha). These patches are best located immediately adjacent to important key habitat elements (wetlands, riparian meadows, lakes, deciduous stands)
- Maintain forest cover adjacent to key habitat elements on all sides. Avoid harvest of mature timber cover within 200m of important key habitat elements
- Cut and leave patterns should provide connectivity between key habitat elements. Corridors need to be minimum 5m in height and minimum 100m in width to provide sufficient lateral cover
- Logged settings should be designed such that areas >400m from sufficient thermal and security cover are minimized. Irregular block boundaries and WTPs (>3-5ha) can be used to assist with this

Guiding Principles Cont'd

- New blocks adjacent to existing cuts should not be harvested until a 5m green-up has been attained
- Locate all roads minimum 200m, preferably 400m, from all key habitat elements
- No net increase in road density. Where new roads are built, the equivalent amount should be rehabilitated in adjacent areas. Focus should be on roads leading to or near key habitat elements
- Avoid loop roads
- All branch and spur roads should be deactivated immediately following harvesting activities. The scattering of debris on in-block roads is a good strategy to minimize traffic. Roads should be completely rehabilitated following achievement of silviculture obligations
- Avoid brushing/treatment of key browse species, especially by broadcast herbicide treatments