Homer Wetland Complexes and Management Strategies

Moose Population and Movements Around Homer

Moose have been abundant on the Kenai Peninsula for over 100 years (Lutz 1960). Moose are an important resource for hunters and are a desired spectacle for local wildlife viewers and tourists.
Densities around the state vary according to the quality of the habitat, predation levels, and other factors. The moose population around the greater Homer area (south of the Anchor River to Kachemak Bay) is currently over 500 animals and is considered a high-density population (Schwartz and Franzman 1989) with about 3 moose per square mile. This Homer moose population is currently the most abundant and productive population on the Kenai Peninsula. Moose from this population likely act as a "source" population in providing dispersing individuals to areas of lower moose densities around the lower Kenai Peninsula (Labonte et al. 1998).

Moose have evolved and adapted to habitat changes influenced by fire (Spencer and Hakala 1964, Loranger et al. 1990) and other natural disturbances. While disturbances such as fire increase the quality and quantity of browse for moose over time with the regeneration of new plant growth, the habitat changes caused by human development can remove important moose forage, eliminate access to existing forage, and/or fragment available browse into small and disconnected areas.

Moose and humans have shared the landscape in various Alaskan communities for many years. Moose inhabit areas within Anchorage because there still is available habitat. However, human-moose conflicts continue to increase as the human population grows and the amount of moose habitat decreases. Moose have been radiocollared in Anchorage using GPS technology that records locations multiple times each day. The data have not been analyzed; however, moose in urban areas appear to spend most of their time in natural areas including parks, greenbelts, and undeveloped properties near developments (R. Sinnott, Anchorage-ADF&G biologist, pers. comm.). These "green areas" provide moose browse, cover to escape from human disturbance and to stay cool, bedding areas for rest and food processing, and undisturbed areas for calving.

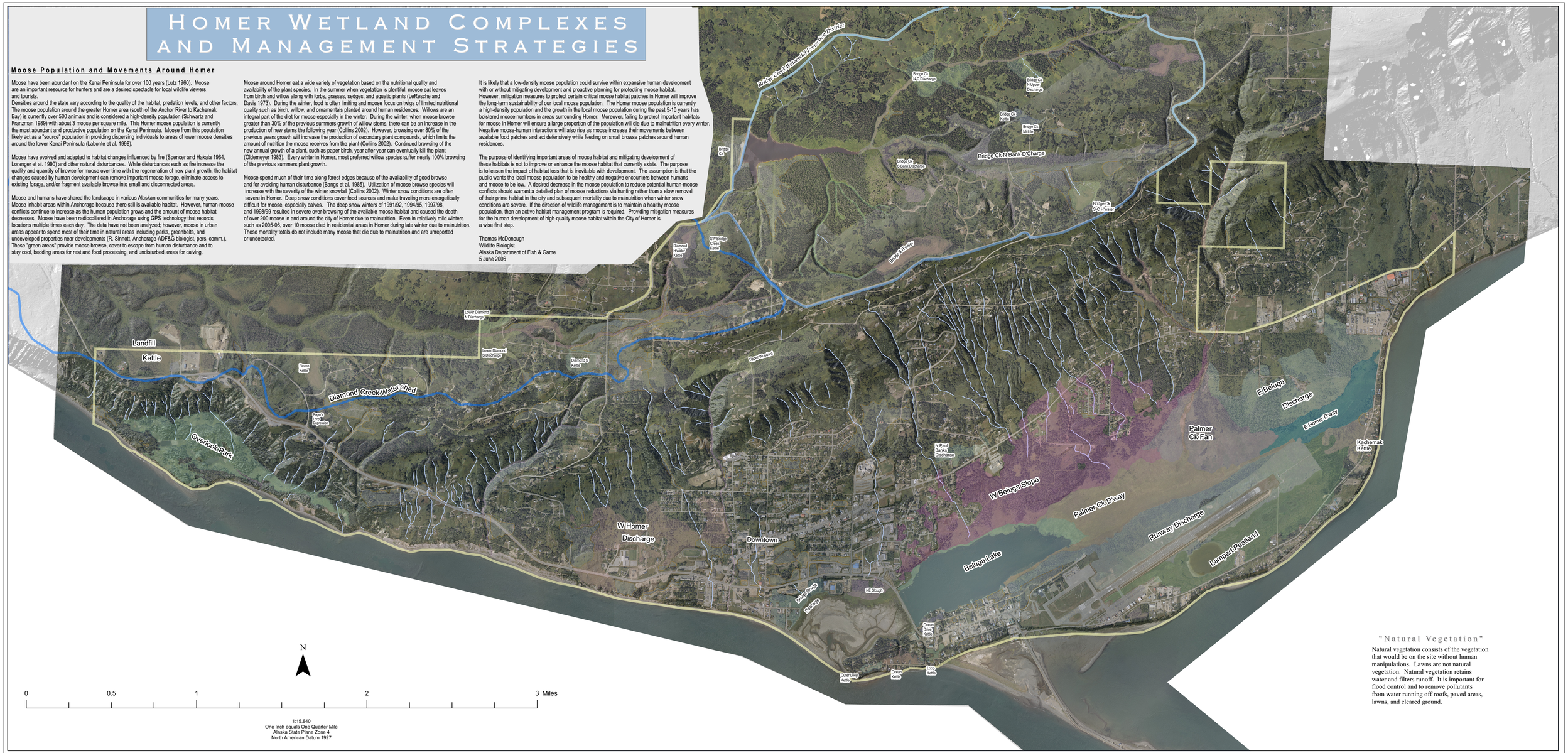
Moose around Homer eat a wide variety of vegetation based on the nutritional quality and availability of the plant species. In the summer when vegetation is plentiful, moose eat leaves from birch and willow along with forbs, grasses, sedges, and aquatic plants (LeResche and Davis 1973). During the winter, food is often limiting and moose focus on twigs of limited nutritional quality such as birch, willow, and ornamentals planted around human residences. Willows are an integral part of the diet for moose especially in the winter. During the winter, when moose browse greater than 30% of the previous summers growth of willow stems, there can be an increase in the production of new stems the following year (Collins 2002). However, browsing over 80% of the previous years growth will increase the production of secondary plant compounds, which limits the amount of nutrition the moose receives from the plant (Collins 2002). Continued browsing of the new annual growth of a plant, such as paper birch, year after year can eventually kill the plant (Oldemeyer 1983). Every winter in Homer, most preferred willow species suffer nearly 100% browsing of the previous summers plant growth.

Moose spend much of their time along forest edges because of the availability of good browse and for avoiding human disturbance (Bangs et al. 1985). Utilization of moose browse species will increase with the severity of the winter snowfall (Collins 2002). Winter snow conditions are often severe in Homer. Deep snow conditions cover food sources and make traveling more energetically difficult for moose, especially calves. The deep snow winters of 1991/92, 1994/95, 1997/98, and 1998/99 resulted in severe over-browsing of the available moose habitat and caused the death of over 200 moose in and around the city of Homer due to malnutrition. Even in relatively mild winters such as 2005-06, over 10 moose died in residential areas in Homer during late winter due to malnutrition. These mortality totals do not include many moose that die due to malnutrition and are unreported or undetected.

It is likely that a low-density moose population could survive within expansive human development with or without mitigating development and proactive planning for protecting moose habitat. However, mitigation measures to protect certain critical moose habitat patches in Homer will improve the long-term sustainability of our local moose population. The Homer moose population is currently a high-density population and the growth in the local moose population during the past 5-10 years has bolstered moose numbers in areas surrounding Homer. Moreover, failing to protect important habitats for moose in Homer will ensure a large proportion of the population will die due to malnutrition every winter. Negative moose-human interactions will also rise as moose increase their movements between available food patches and act defensively while feeding on small browse patches around human residences.

The purpose of identifying important areas of moose habitat and mitigating development of these habitats is not to improve or enhance the moose habitat that currently exists. The purpose is to lessen the impact of habitat loss that is inevitable with development. The assumption is that the public wants the local moose population to be healthy and negative encounters between humans and moose to be low. A desired decrease in the moose population to reduce potential human-moose conflicts should warrant a detailed plan of moose reductions via hunting rather than a slow removal of their prime habitat in the city and subsequent mortality due to malnutrition when winter snow conditions are severe. If the direction of wildlife management is to maintain a healthy moose population, then an active habitat management program is required. Providing mitigation measures for the human development of high-quality moose habitat within the City of Homer is a wise first step.

Thomas McDonough
Wildlife Biologist
Alaska Department of Fish & Game
5 June 2006



"Natural Vegetation"

Natural vegetation consists of the vegetation that would be on the site without human manipulations. Lawns are not natural vegetation. Natural vegetation retains water and filters runoff. It is important for flood control and to remove pollutants from water running off roofs, paved areas, lawns, and cleared ground.

Synopsis

In 2005-2006 representatives of the City of Homer, US Army Corps of Engineers, Environmental Protection Agency, US Fish & Wildlife Service, Kachemak Bay Research Reserve, Cook Inletkeeper, Kenai Watershed Forum, Natural Resources Conservation Service, and Alaska Department of Fish & Game met to assess Homer wetlands. After a thorough review of methods, a scoring protocol was developed and all wetlands were scored.
These strategies arose from that effort and are currently being used by some agency personnel to comment on Clean Water Act Section 404 wetland permits.

Beluga Lake

Prohibit fill in Beluga Lake or the two associated wetland polygons (docks are permitted).

Beluga Slough

Development in tidally influenced wetlands should be prohibited.

Beluga Slough Discharge Slope

Development should be encouraged in this core area of Homer. Mitigate for the loss of moose habitat. Further development north of Bunnel Avenue and east of Main Street should be discouraged. A goal of this plan is to bring private parcels in this area into conservation status. Development in tidally influenced wetlands should be prohibited.

Bridge Creek Wetlands

The wetland management strategy for this watershed is the same as the Bridge Creek Watershed Protection ordinance, which includes a prohibition on filling wetlands.

Diamond Creek Wetlands

Maintain large lot sizes. Maintain a 100 ft setback of natural vegetation along either side of Diamond Creek and its tributaries. Crossings should be perpendicular to the channel, via bridge or oversized culvert and involve the minimum amount of fill necessary for safety. Where uplands exist on a lot they must be used prior to filling wetlands. If more than 3% of wetlands on any lot are converted to hardened surface they must be compensated for with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Downtown wetlands

On City-owned parcels, maintain greenbelts incorporating storm water retention designs. Where uplands exist on a lot they must be used prior to filling wetlands. If more than 3% of wetlands on any lot are converted to hardened surface they must be compensated for with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

East Beluga Discharge

Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Site design should include hydrologic connectivity to upstream and downstream parcels. Moose habitat values are high throughout. Moose habitat should be preserved or mitigated. Development along the border with the East Homer Drainageway Complex should maintain an 85 ft buffer of natural vegetation.

East Homer Drainageway

This area should be targeted for preservation and restoration. Encourage purchasing of private lots by Kachemak Heritage Land Trust, Moose Habitat Incorporated and others.
If possible, restore hydrology and repair or implement suitable storm water management measures along Kachemak Drive. Some fill may be allowed along Kachemak Drive.

Kachemak Kettle

Maintain a 100 ft buffer along the East Homer Drainageway. Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Lampert Peatland

Maintain a 100 ft buffer around Lampert Lake. Mitigate for lost hydrologic, general habitat, and moose habitat functions in wetlands west of Lampert Lake. Discourage further development of wetlands east of Lampert Lake. Prohibit wetland filling more than 400 ft from Kachemak Drive.

Landfill Kettle

Restrict development to the south side of the wetlands and along the highway. Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated. The peatlands should be preserved and buffered with a 50 ft setback of undisturbed natural vegetation as they are highly functional for water retention and filtering.

Loop Kettle

Loss of moose habitat should be mitigated.

NE Slough

Retain natural vegetation as is practicable. Preserve existing wetlands for water quality functions and moose habitat.

N. Paul Banks Discharge

Encourage development here. Retain natural vegetation as is practicable. Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Ocean Kettle

Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Ocean Drive Kettle

Retain natural vegetation as is practicable. Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Outer Loop Kettle

Retain natural vegetation as is practicable. Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Overlook Park

Public lands: Maintain in conservation status and manage according to site management plan. Private Lands: Maintain moose habitat by limiting fill to the minimum necessary for a residence and minimum driveway and parking. No ditching or changes to drainageways should be allowed. Locate roads out of wetlands and out of drainageways to the extent possible. Maintain a 100 ft setback of natural vegetation on either side of Overlook Creek.

Palmer Drainageway and Fan

Maintain a 100 ft setback of natural vegetation on either side of Palmer Creek. Crossings should be perpendicular to the channel via bridge or oversized culvert and involve the minimum amount of fill necessary for safety. All of these wetlands should be preserved. A wetlands bank with Moose Habitat Incorporated will target private parcels in this area, along with the East Homer Drainageway, for purchase and preservation. Wetlands within the City of Homer that have been targeted for moose mitigation are eligible to receive credits from this bank.

Raven Kettle & Roger's Loop Depression

Avoid wetland fill. Maintain the hydrologic integrity of drainageways and water retention and filtration capacity of the complex. Where uplands exist on a lot they must be used prior to filling wetlands. If more than 3% of wetlands on any lot are converted to hardened surface they must be compensated for with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Runway Discharge

Within the airport boundary wetland hydrology should be maintained. Public lands: Those tracts outside the airport boundary should be maintained and managed for the values of the Homer Airport Critical Habitat Area.
Private lands: Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Upper Woodard

On City-owned parcels, maintain greenbelts incorporating storm water retention designs. Retain as much natural vegetation on individual lots as is practicable. Where uplands exist on a lot they must be used prior to filling wetlands. If more than 3% of wetlands on any lot are converted to hardened surface they must be compensated for with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

West Beluga Slope

Public lands: Publicly owned lands should be preserved as undisturbed wetlands.
Private lands: These should be prioritized and purchased over time for inclusion in a mitigation bank whose purpose is to preserve moose habitat. Development should be discouraged. A master plan should be developed for this area as it is a very important wetland complex, and it is probably the most threatened in the City of Homer.

West Homer Discharge

Retain natural vegetation as is practicable. Accelerated runoff from hardened surfaces will be offset with swales and/or runoff retention ponds. Loss of moose habitat should be mitigated.

Wetlands mapped at 1:12,500, 2005.
Background imagery from Aerometric, 2003.
Prepared by Mike Gracz, Kenai Watershed Forum mike@kenaiwatershed.org
907-235-2218
4 Feruary 2011.