

# **Elk Population Research Update**

## **Fort Niobrara National Wildlife Refuge**

**March, 2016**



**Background:** After being initially extirpated from the state around 1880; elk first reappeared in Nebraska in captive herds and eventually free-ranging individuals pioneered to other parts of the state. Elk were reintroduced to the Fort Niobrara National Wildlife Refuge (NWR) in 1913 with the donation of 17 elk by J.W. Gilbert of Friend, NE. Refuge elk management policy/philosophy implemented over the years was to maintain a representative herd, confined by fence, under reasonably natural conditions in numbers sufficient to ensure their continued existence.

Although elk were kept in this confined area to maintain a representative herd, eventually wild free-ranging elk moved into the area, lessening the need for a captive herd. These elk that are kept in confinement are, however, subject to problems not present in wild herds such as increased risk of adverse effect from density-dependent or environmentally transmitted infectious diseases (i.e. CWD) and parasites; altered plant community from year-round grazing; and competition with other herbivores. As a result, an elk management plan and Environmental Assessment was completed for Fort Niobrara NWR (U.S. Fish and Wildlife Service 2009). Implementation of the management plan will result in a shift from confined elk management to free-ranging elk management in partnership with the Nebraska Game and Parks Commission.

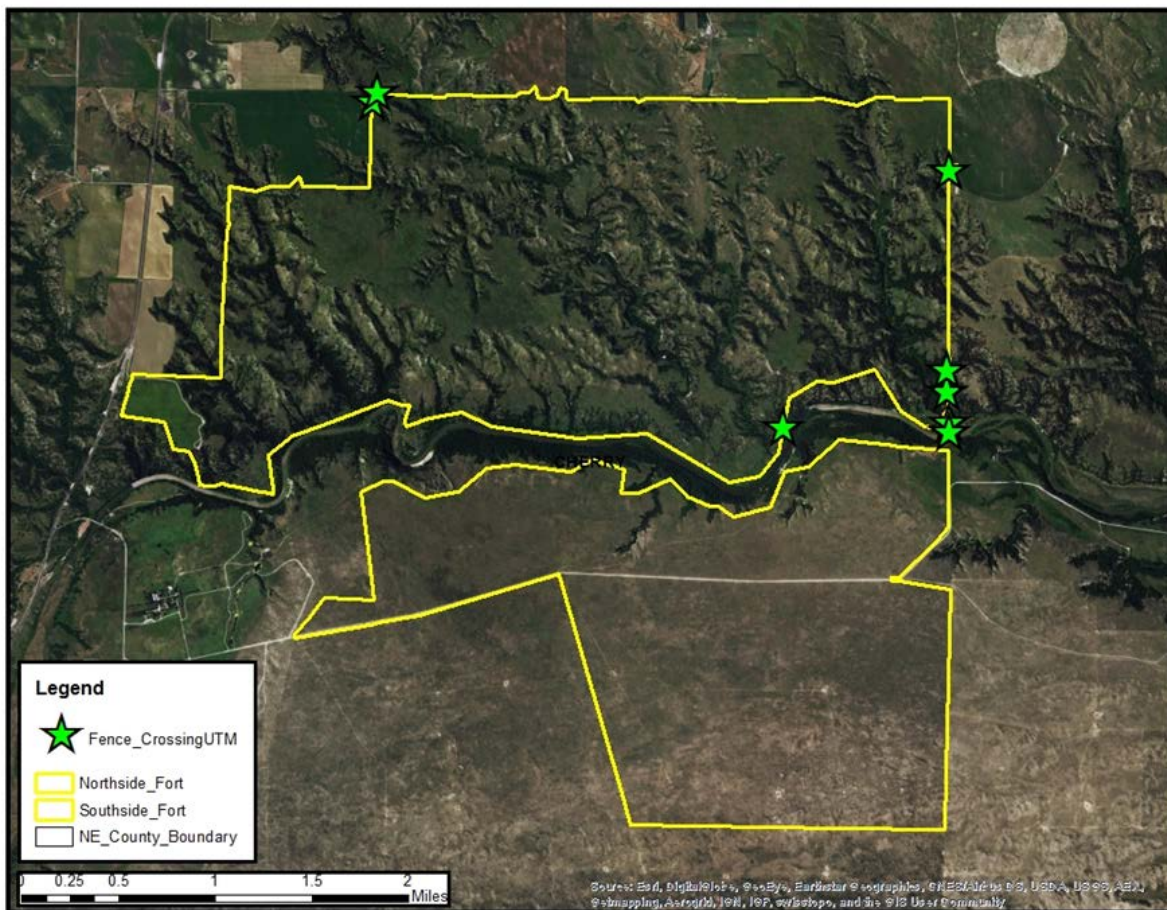
**Objective:** The purpose of this study was to fill information gaps to enable the U.S. Fish and Wildlife Service (USF&WS) and Nebraska Game and Parks Commission to better predict and assess progress towards managing for a sustainable, free-roaming elk population on and in the vicinity of Fort Niobrara NWR for viewing and hunting opportunities, as well as managing elk populations within the Niobrara River valley.

**Progress Update:** In 2013 and 2014, 10 adult elk were captured and fitted with GPS/VHF radio collars in the Valentine, NE region of the Niobrara River. In 2014 and 2015, 10 additional adult individuals were fitted with collars in the Bassett, NE area. Analysis is complete on collars that have detached in the Valentine, NE region and nine working collars continue to provide data for the Bassett region. Fixed wing aircraft survey flights have concluded for the Valentine region but continue with the collared elk near Bassett (Table 1.). While timber densities create challenges for counting and estimating elk, the survey method is providing useful data and will help managers better understand population levels, movement, and regional distribution of elk.

**Table 1.**

Survey Date	Valentine					Bassett				
	Bulls	Cows	Calves	Unknown	Total	Bulls	Cows	Calves	Unknown	Total
12/10/2013	2	20	5	0	27	NA	NA	NA	NA	NA
12/3/2014	1	8	3	56	68	1	6	0	10	17
1/15/2015	6	29	15	0	50	2	9	4	1	16
1/12/2016	5	24	5	0	34	2	30	4	0	36

**Refuge Fence with crossing locations:** Yellow lines signify where the fence line is located. The north side of the fence is approximately 4,017 acres; south side 2,607; and intermediate river corridor 1,088. Fence crossings by elk and other wildlife are denoted with green stars.



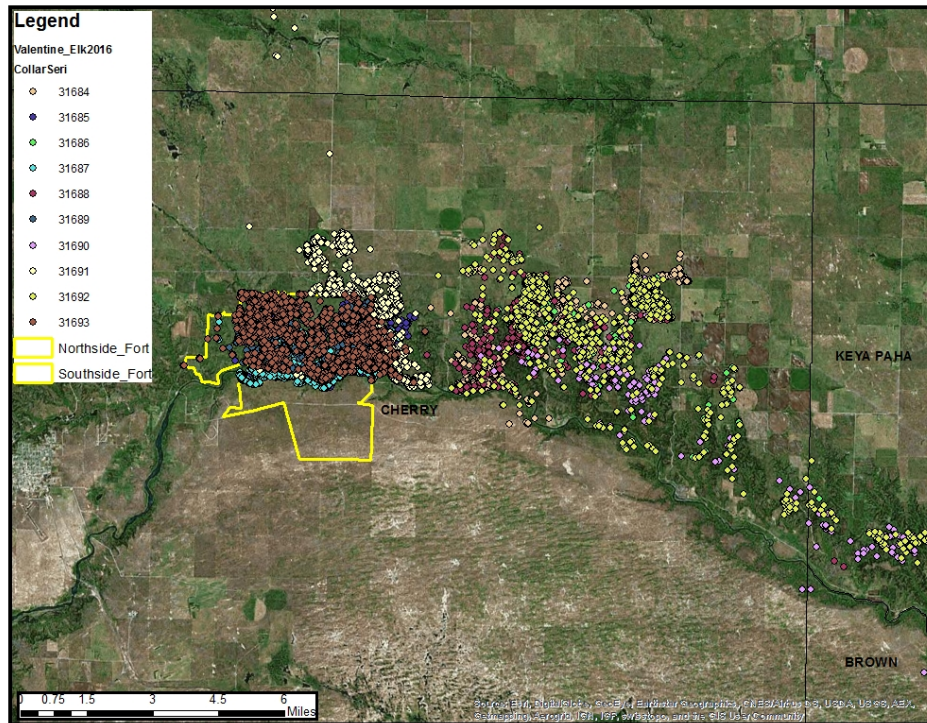
**Valentine elk capture data and GPS collar locations:**

Animal	Serial Number	Sex	Capture Date	GPS Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Home Range (Mi <sup>2</sup> )
84	31684	F	2/15/2013	1473	0	0%	N	31
85	31685	F	2/24/2013	1383	956	69%	Y	10
86	31686	F	2/21/2014	664	0	0%	N	91
87	31687	F	2/24/2013	1566	285	18%	Y	11
88	31688	M	2/21/2014	975	1	0%	Y	720
89	31689	F	2/24/2013	1353	1300	96%	N	9
90	31690	M	2/21/2014	416	0	0%	N	102
91	31691	F	2/24/2013	1488	20	1%	Y	29
92	31692	F	2/21/2014	1305	0	0%	N	176
93	31693	F	2/24/2013	1395	1028	74%	Y	12

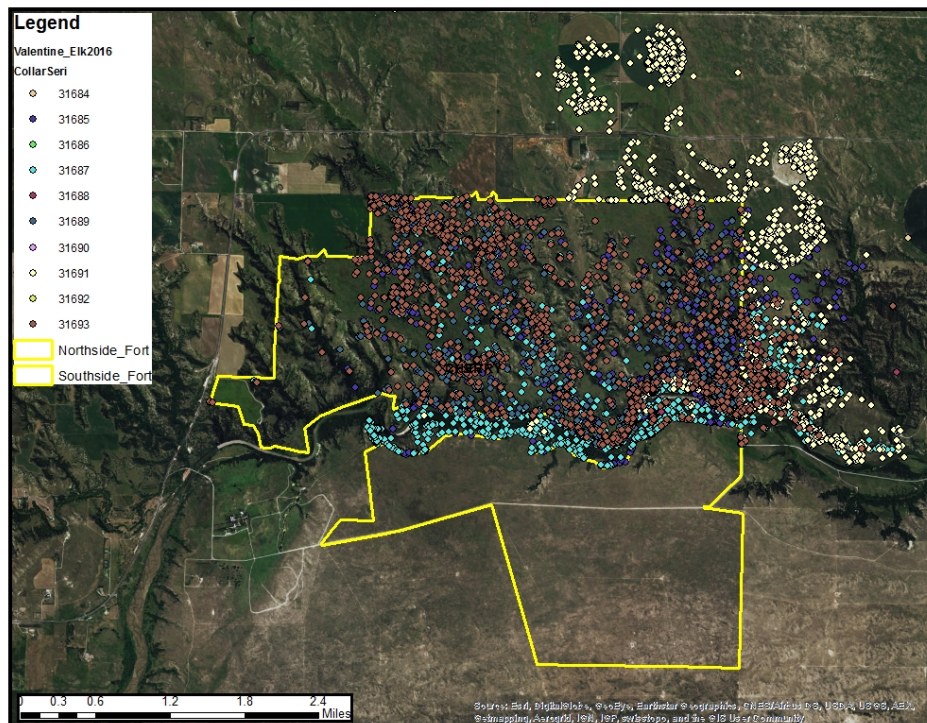


## View of refuge fence and Valentine elk locations within, and around the fence:

Zoomed out:

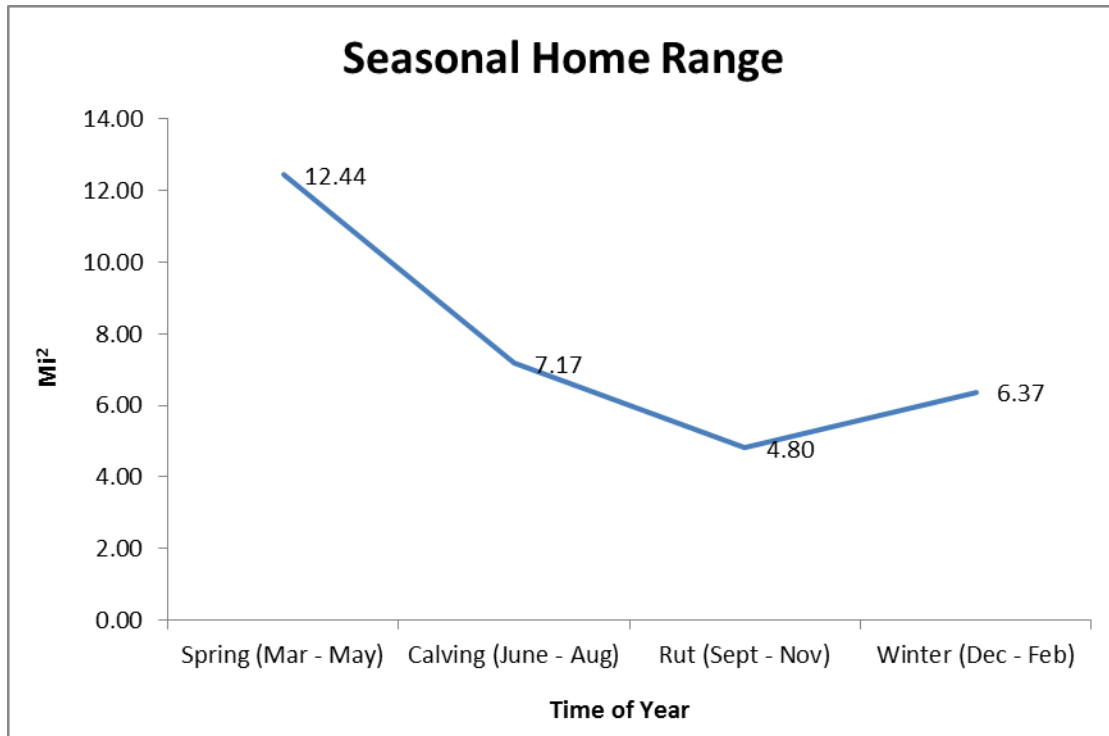
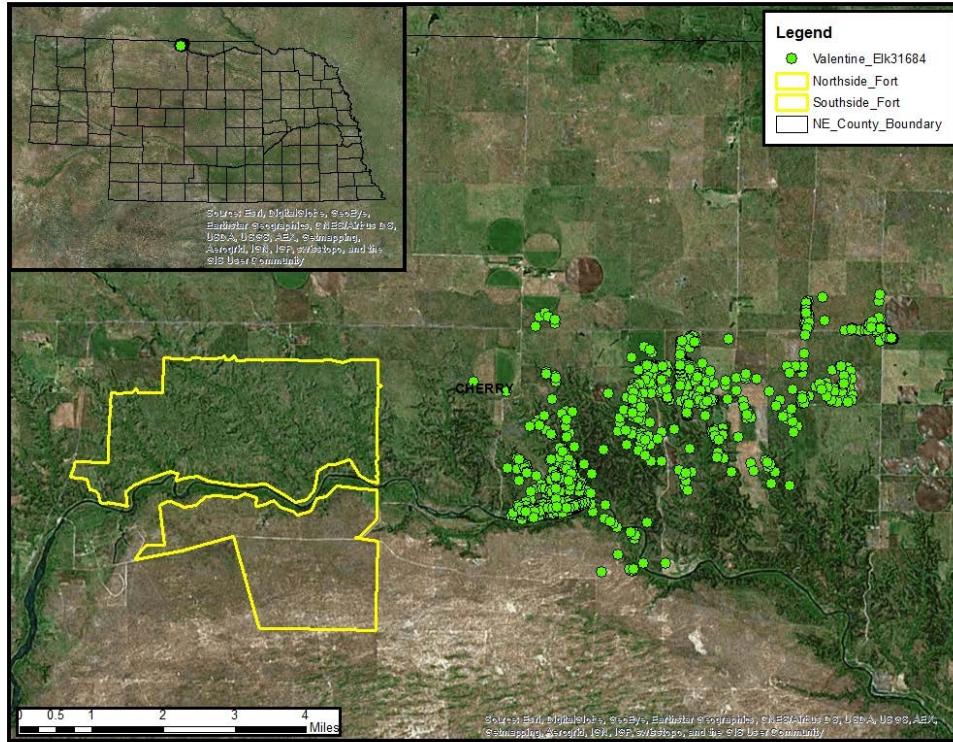


Zoomed in:



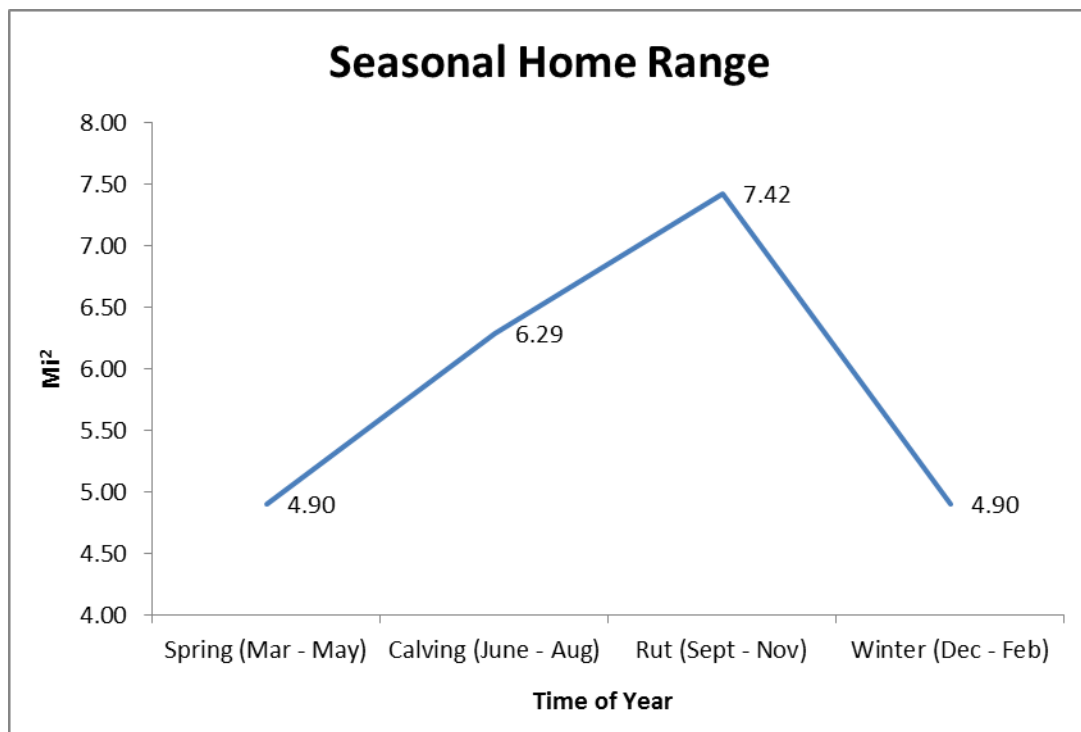
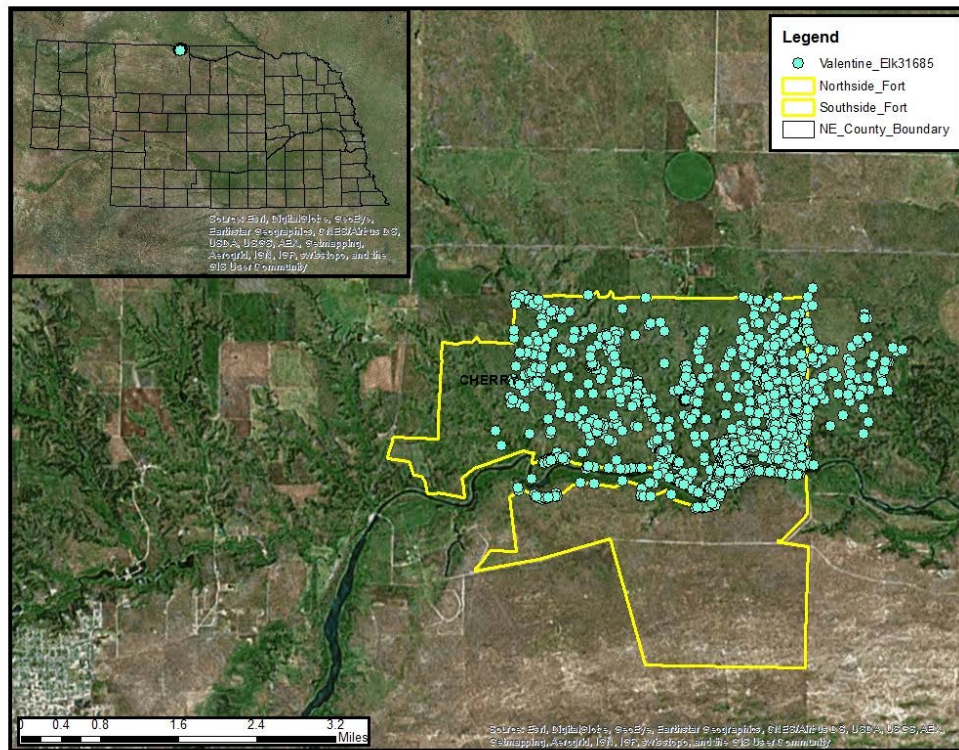
### Individual Valentine elk data:

Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
84	F	2/15/2013	1473	0	0%	N	31

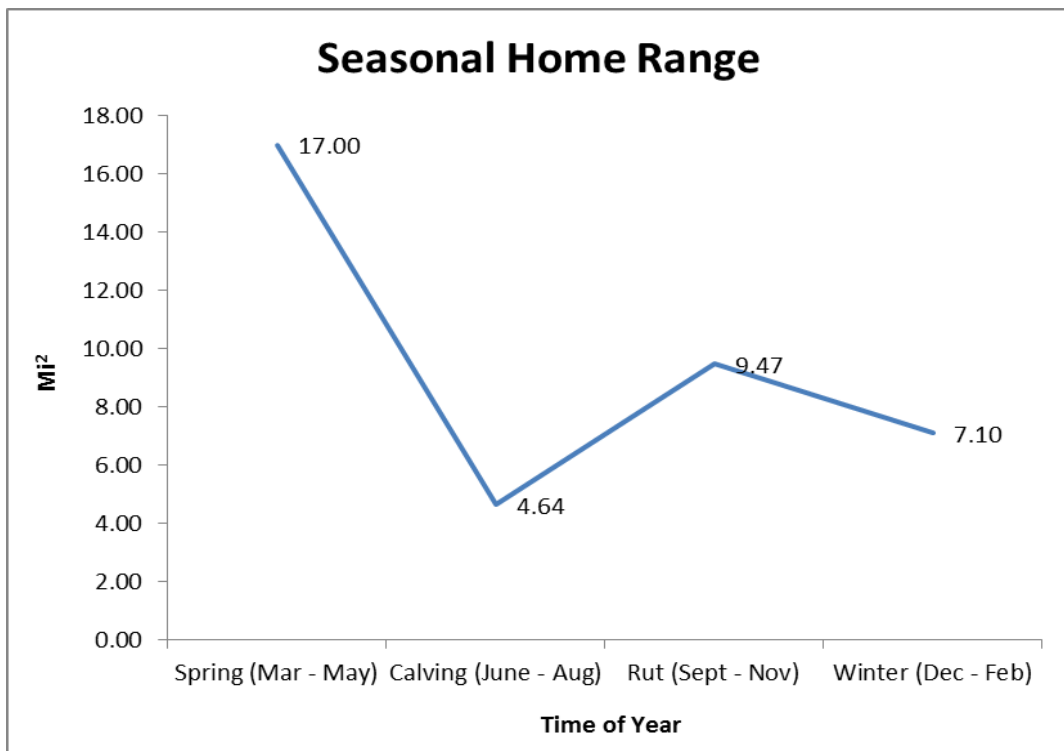
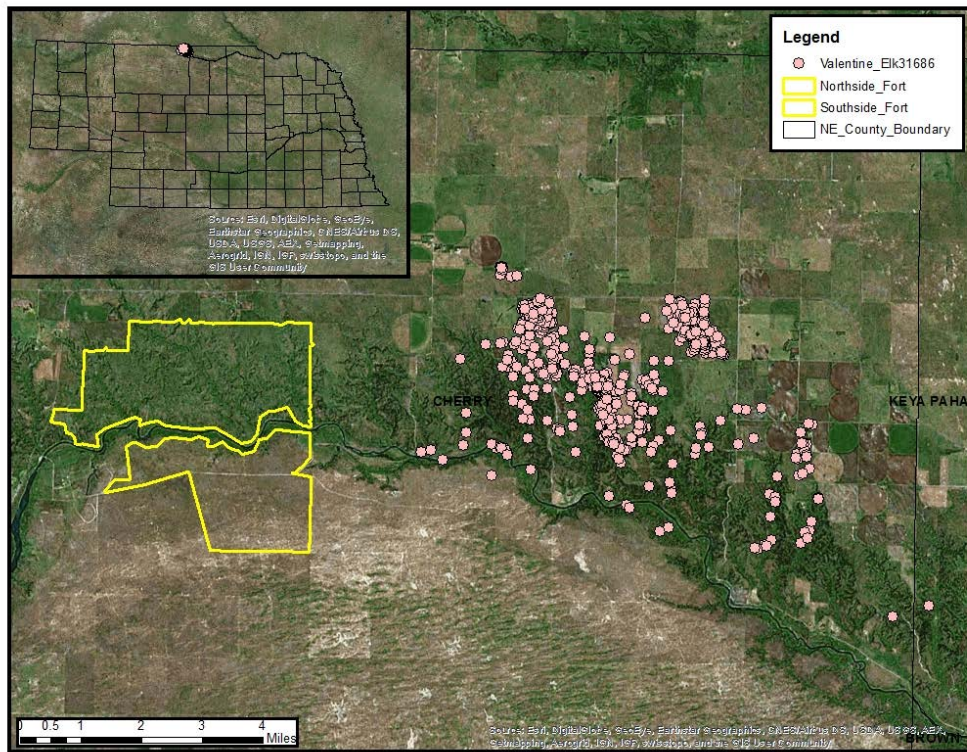




Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
85	F	2/24/2013	1383	956	69%	Y	10

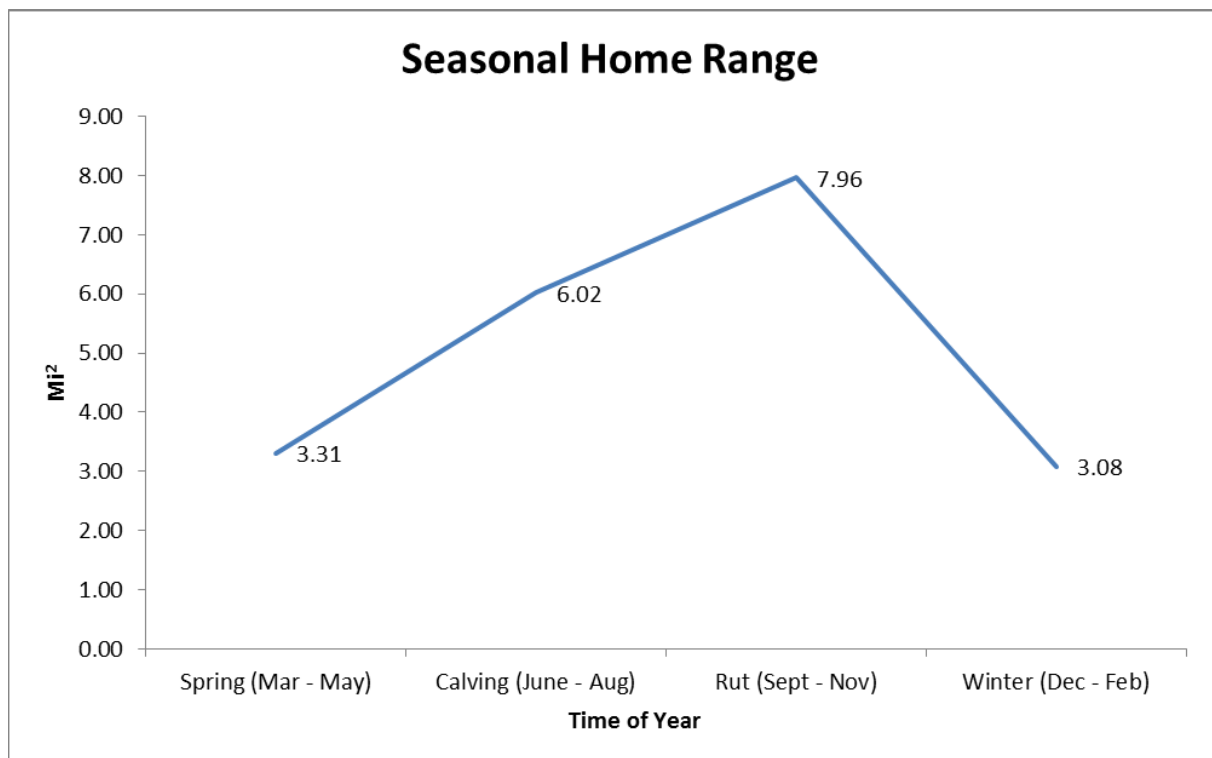
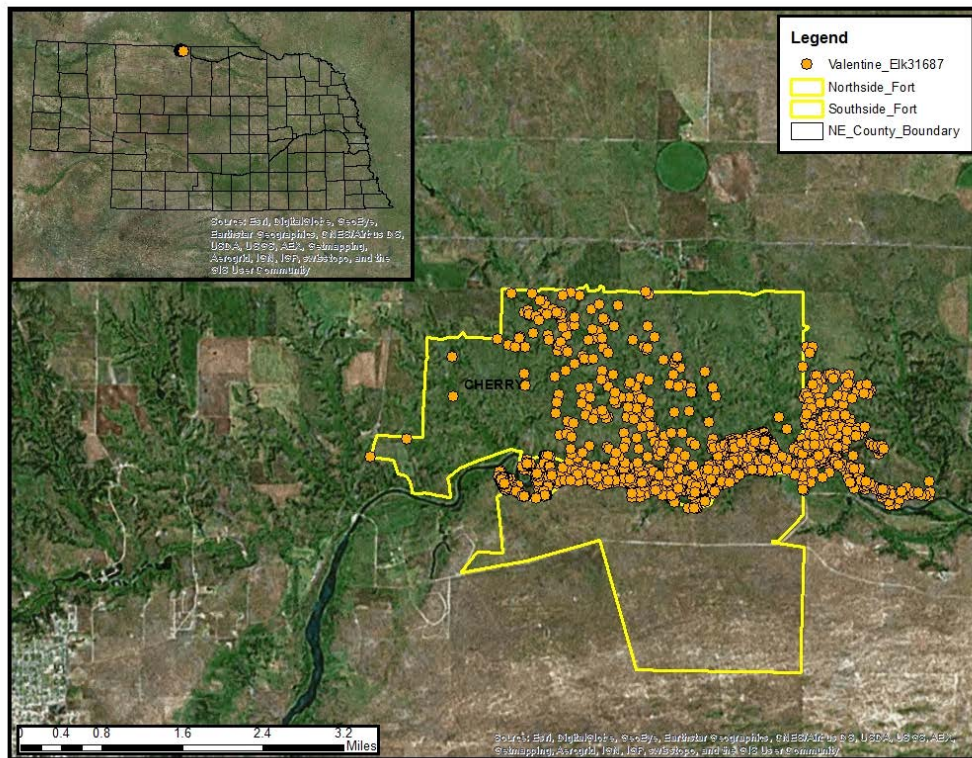


Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
86	F	2/21/2014	664	0	0%	N	91



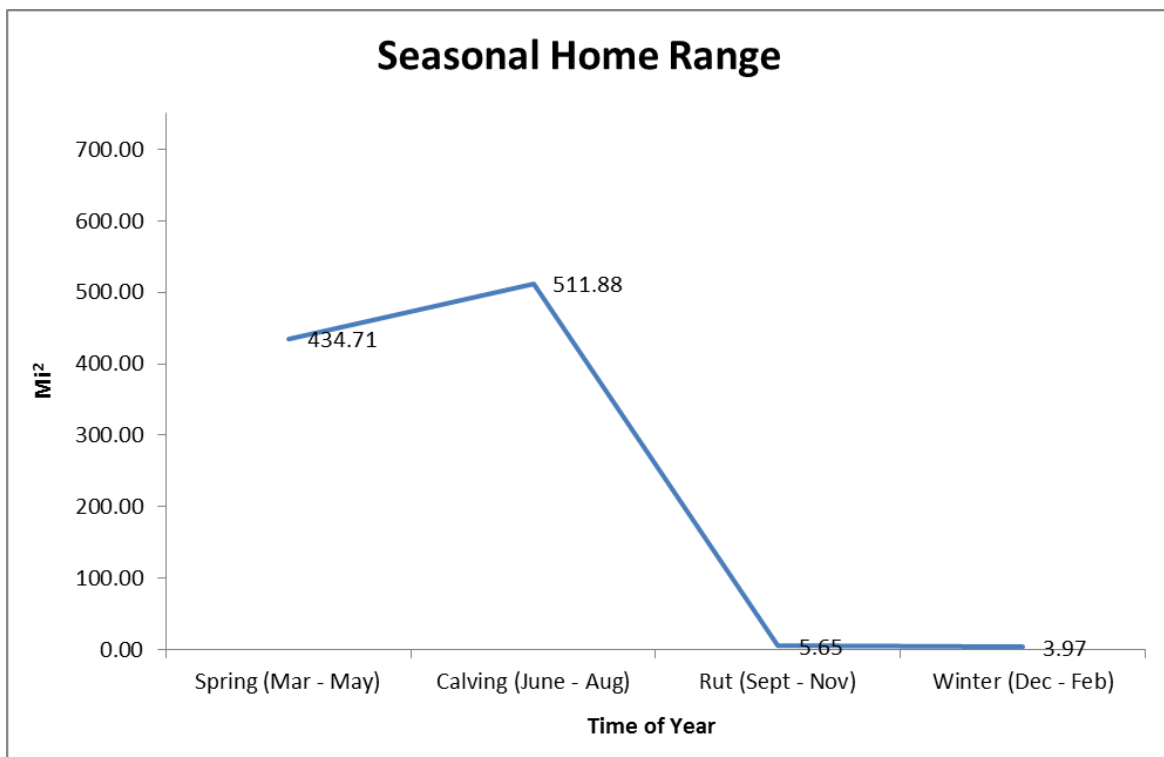
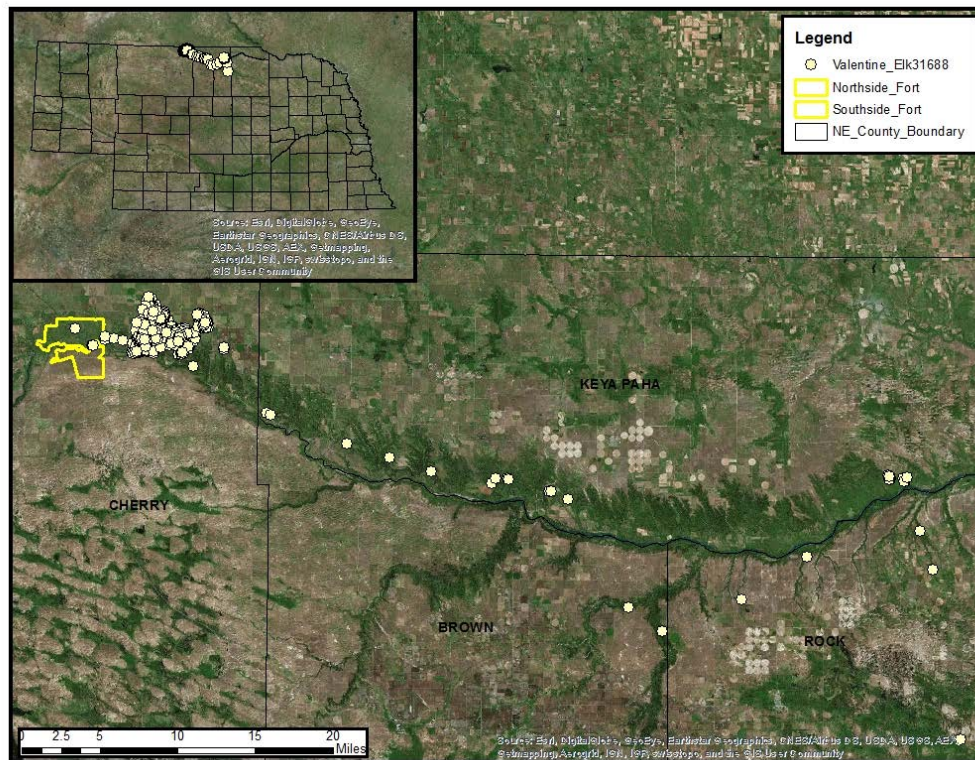


Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
87	F	2/24/2013	1566	285	18%	Y	11

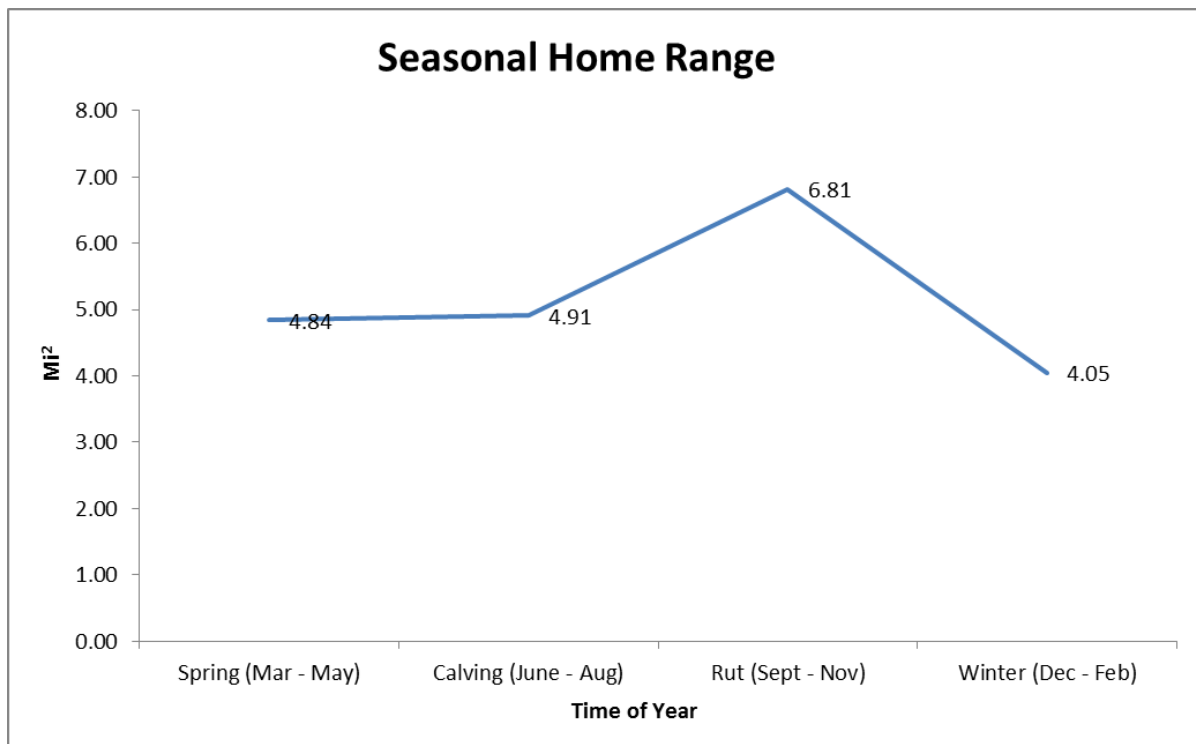
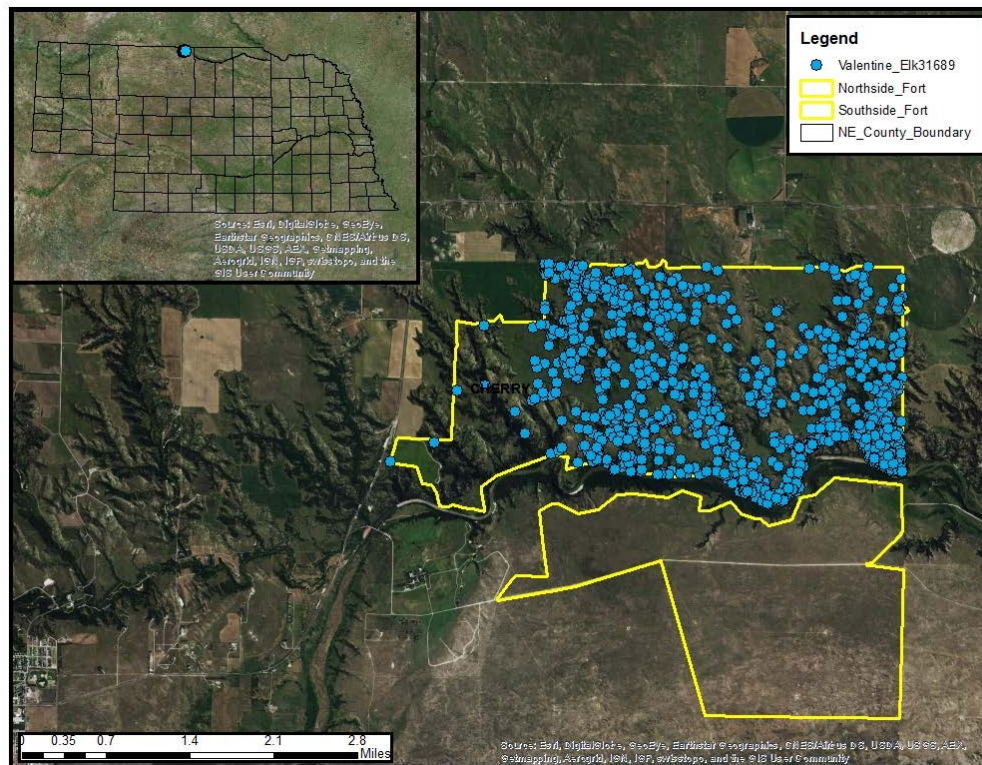




Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
88	M	2/21/2014	975	1	0%	Y	720

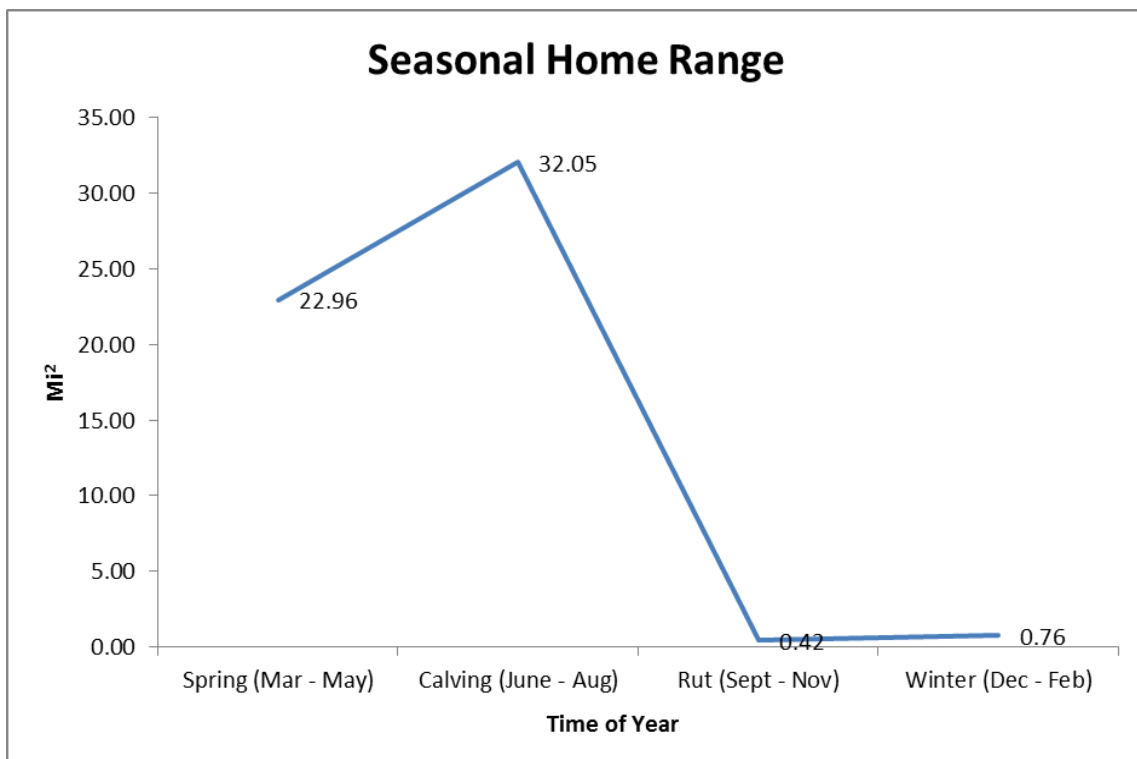
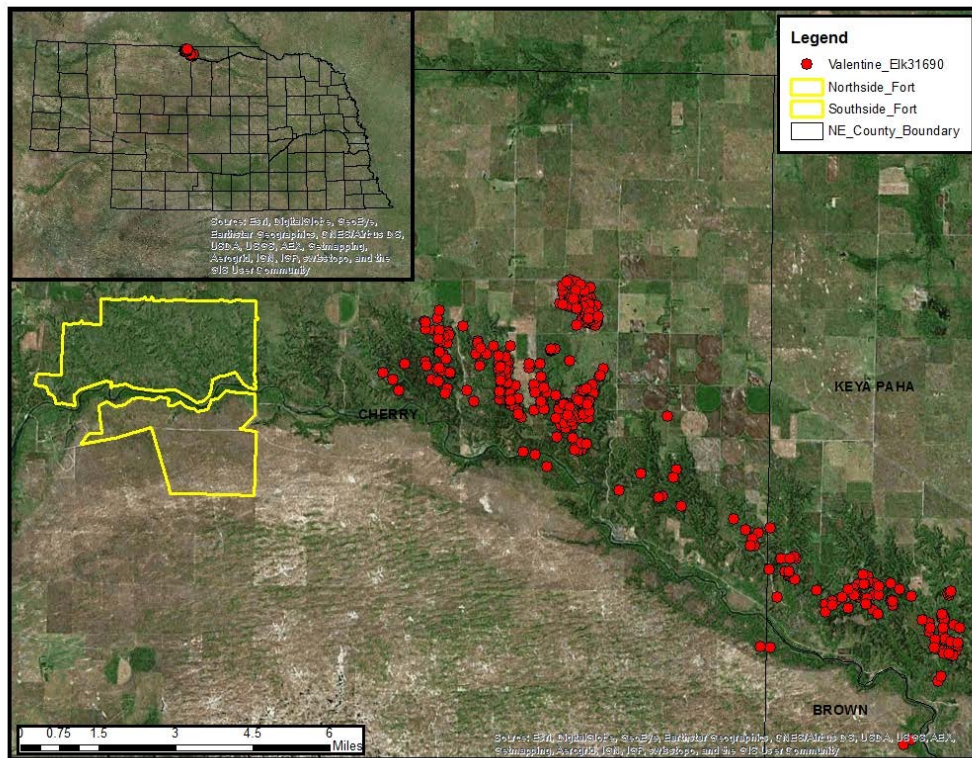


Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
89	F	2/24/2013	1353	1300	96%	N	9





Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
90	M	2/21/2014	416*	0	0%	N	102

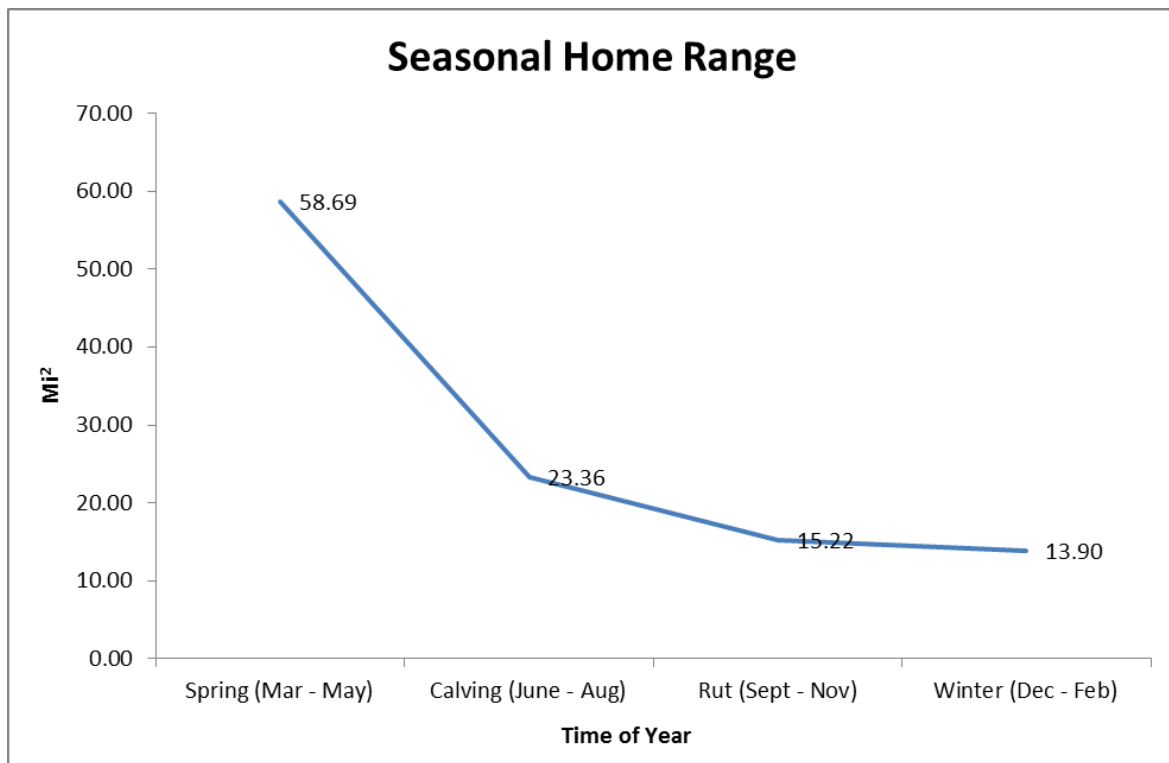
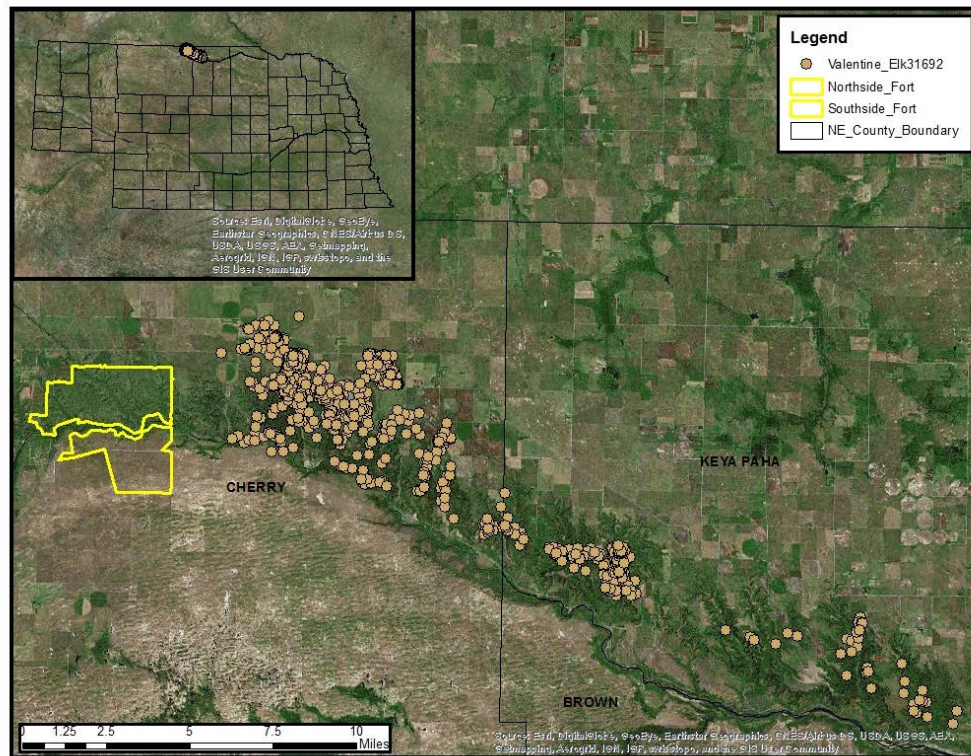


\*Collar dropped off prematurely so not all seasons are represented.





Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
92	F	2/21/2014	1305	0	0%	N	176



Animal ID	Sex	Capture Date	Total Locations	Refuge Locations	Percent in Refuge	River Corridor Use?	Total Home Range (Mi <sup>2</sup> )
93	F	2/24/2013	1395	1028	74%	Y	12

