

Table



Sensitive Raptor Range

FID	Shape	RANGE	PERIM10TM	AREA10TM	ACRES10TM	HA10TM	SHAPE_STAr	SHAPE_STLe
0	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.98198	6282.977452
1	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.98395	6282.977458
2	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.008	6282.977484
3	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00289	6282.977477
4	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.02263	6282.977502
5	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.9932	6282.977464
6	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.98292	6282.97746
7	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141176.98672	6282.977471
8	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141177.02469	6282.977501
9	Polygon	Prairie Falcon	2187832.01742	108406128567	26787737.753	10840612.8567	108406128608	2187832.01696
10	Polygon	Golden Eagle	2033372.30682	86016261452.5	21255081.0986	8601626.14525	86016261404.800003	2033372.30676
11	Polygon	Ferruginous Hawk	1153286.96417	91683310472.899994	22655439.4086	9168331.04729	91683310478.600006	1153286.96399
12	Polygon	Bald Eagle	2880647.64518	43827240170.599998	10829946.901	4382724.01706	43827240646.199997	2880647.64588
13	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.98889	6282.977463
14	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00491	6282.977483
15	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.97148	6282.977448
16	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.99098	6282.977458
17	Polygon	Peregrine Falcon	6368.879007	3227062.3335	797.424469	322.706233	3227062.32435	6368.87899
18	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141176.97553	6282.977454
19	Polygon	Peregrine Falcon	6726.070031	3582447.01459	885.241936	358.244701	3582447.00706	6726.070015
20	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141177.00742	6282.977476
21	Polygon	Peregrine Falcon	6282.98089	3141180.69011	776.202653	314.118069	3141180.69207	6282.980888
22	Polygon	Peregrine Falcon	6282.98089	3141180.69011	776.202653	314.118069	3141180.71151	6282.980912
23	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141177.01052	6282.977482
24	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00289	6282.977477
25	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00783	6282.977487
26	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00037	6282.977476
27	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.99752	6282.977472
28	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00448	6282.977471
29	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00481	6282.977473
30	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.99184	6282.977464
31	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00881	6282.977487
32	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141176.96035	6282.977447
33	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.04175	6282.977513
34	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.00268	6282.977478
35	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141177.00892	6282.977486
36	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.97243	6282.977451
37	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.01021	6282.977481
38	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141177.00331	6282.977468
39	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.99476	6282.97747
40	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.9846	6282.97747
41	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.01202	6282.977492
42	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141176.97981	6282.977451
43	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141177.01058	6282.977482
44	Polygon	Peregrine Falcon	6282.977474	3141177.00013	776.201741	314.1177	3141176.99457	6282.977462
45	Polygon	Peregrine Falcon	6282.977474	3141177.00014	776.201741	314.1177	3141176.99324	6282.977468

Information below has been copied from species ports provided by COSEWIC, as well as a publication from the Pest Management Regulatory Agency (PACR2005-08).

Source:

Pest Management Regulatory Agency – Health Canada. (2005). Re-evaluation of Strychnine. Proposed Acceptability for Continuing Registration: PACR2005-08

Pg.5

2.4.3 Terrestrial Assessment - Birds

...To reach the no observed effect level (NOEL), carnivorous birds would need to consume contaminated intestinal tissues for 0.1 day and contaminated muscle for 0.8 day. As the number of feeding days for an adverse effect is less than one, there is an acute risk to carnivorous birds consuming contaminated carcasses or prey items.

...On a chronic basis, the most sensitive endpoint in birds was the testes size. The risk quotients (Estimated Environmental Concentration

Pg. 8

2.4.6 Incident Reports

Canadian incident reports of strychnine poisoning are not available. However, the PMRA requested incident reports of strychnine poisonings from the USEPA. The American incident reports span from 1966 to 2001 and they are divided into categories according to the legality of the use. Incidents that were clear cases of intentional misuse are not considered here.

Over the 20 year period spanning from 1968 to 1988, when above ground use (which include the used pattern for ground squirrel control) were permitted, the USEPA reported a total of 39 incidents. **During the 12 year period spanning from 1989 to 2001, when above ground uses were banned, a total of 17 incidents were reported. The majority of reported incidents involved birds and included a large number of incidents involving predatory species.** For non-predatory species, the number of individuals killed per incident ranged from as low as one individual to an incident involving thousands of starlings, and includes small species (e.g. songbirds) as well as larger species (e.g. geese). Incidents involving predatory species, such as eagles and other raptors, usually involved only a few individuals per report. Of particular interest is the observation that after **above ground uses of strychnine were banned in the United States, the number of reported incidents involving predatory bird species fell to zero.**

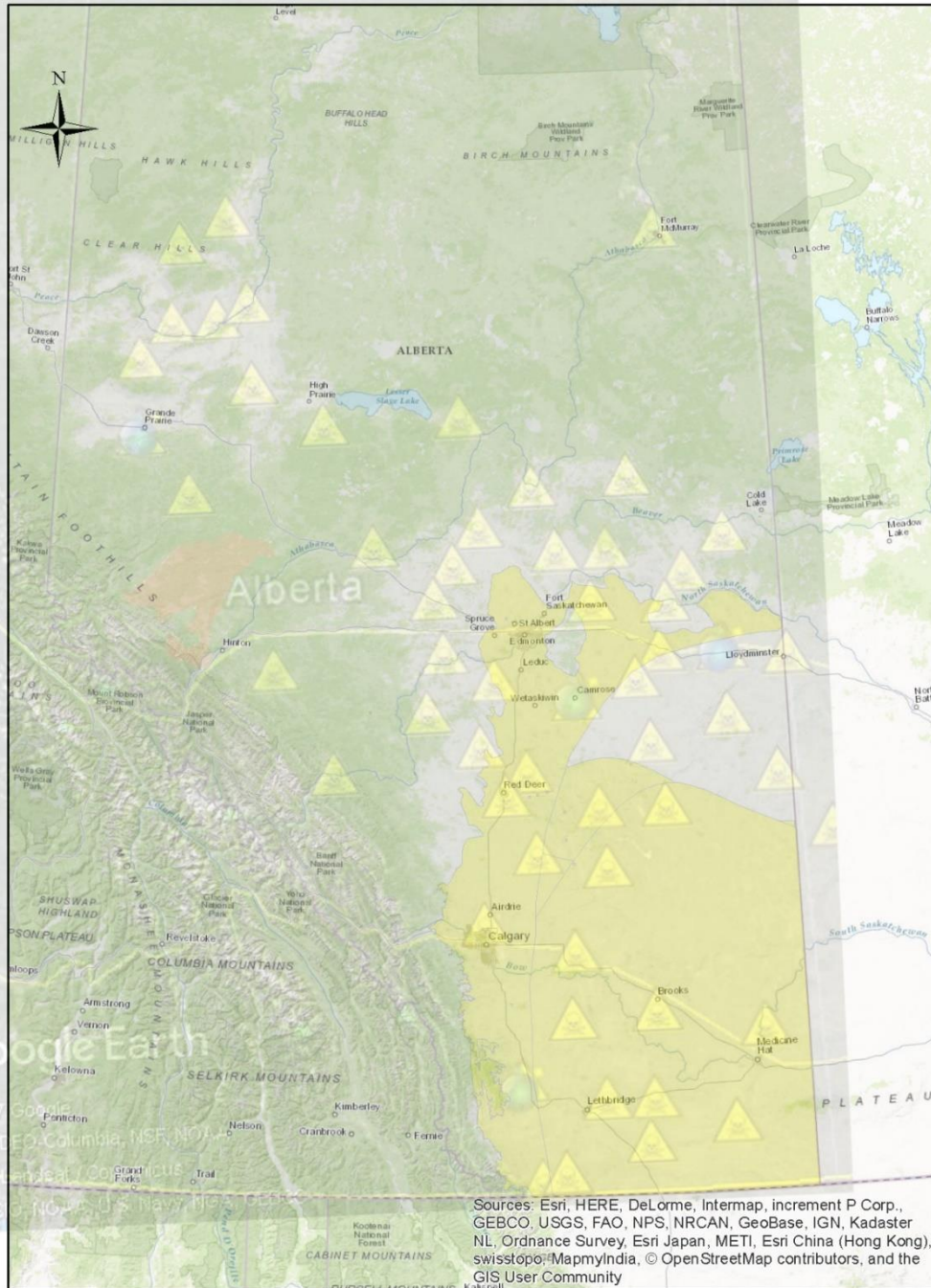
Incident reports are not necessarily predictive of the magnitude of non-target mortality resulting from strychnine use because the **number of unreported incidents is unknown.** However these reports do support the conclusion of this risk assessment as they indicate that the use of strychnine does result in primary and secondary poisoning of non-target species.

The US Department of Agriculture has documented the strychnine-caused death of the following endangered species: Attwaters' greater prairie chickens, **burrowing owls**, whooping cranes, **bald eagles**, **peregrine falcons**, northern aplomado falcons, jagurundi, ocelots and wolves¹.

The maps below have been put together to demonstrate that compound 1080 is currently being used in areas too close to Burrowing owls and their range. We are not able to show where liquid strychnine is being used, but this use also causes great concern.

¹ U.S. Department of Agriculture – Animal and Plant Health Inspection Service – Animal Damage Control. 1994. Final Environmental Impact Statement.

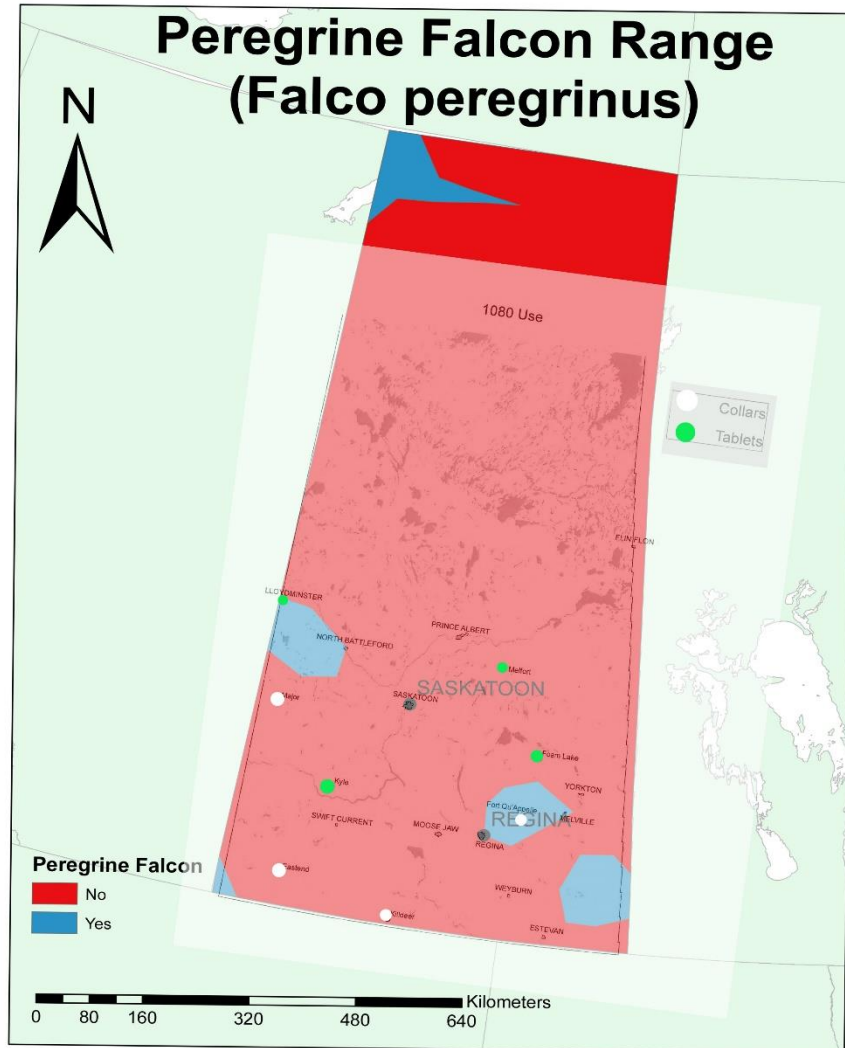
Sensitive Raptor Range



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

0 50 100 200 300 400 Kilometers

Projection: NAD 1983 10TM AEP Forest
 Source: Alberta Environment and Parks
 Created by: Victoria Lukasik
 Date: April 4, 2017



Ferruginous Hawk

Ferruginous Hawk – *Buteo regalis*

Federal Status: THREATENED / Provincial Status: Alberta: AT RISK (2015) Saskatchewan: XXXXX

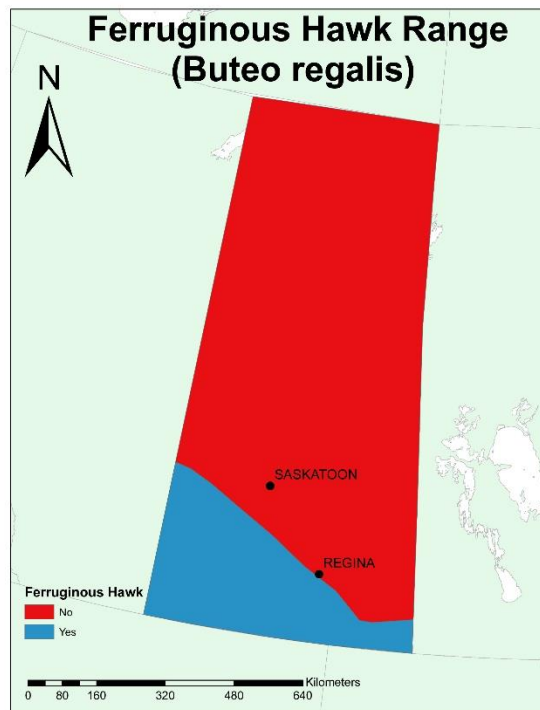
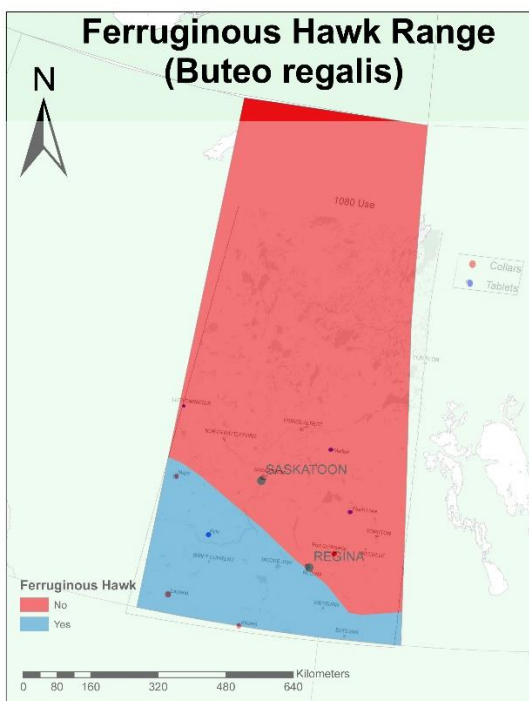
Figure 1 Golden Eagle photo

Source: Government of Alberta. 2017. Alberta Wild Species General Status Listing - 2015. 24pp.

<http://aep.alberta.ca/fish-wildlife/species-at-risk/albertas-species-at-risk-strategy/general-status-of-alberta-wild-species/documents/SAR-2015WildSpeciesGeneralStatusList-Mar2017.pdf> Accessed January 5, 2018

Pg. 6

Fewer than 700 pairs estimated in Alberta. Dramatic declines and range reduction have occurred as a result of human disturbance and habitat alteration. Research on ground squirrel prey base required. Designated as “Threatened” under the Wildlife Act.



Bald Eagle

Golden Eagle – *Aquila chrysaetos*

*Federal Status: NOT AT RISK (Last assessment 1996)/Provincial Status: Alberta: SENSITIVE (2015) Saskatchewan:
No evaluation*

Figure 2 Golden Eagle photo

Source: Government of Alberta. 2017. Alberta Wild Species General Status Listing - 2015. 24pp.
<http://aep.alberta.ca/fish-wildlife/species-at-risk/albertas-species-at-risk-strategy/general-status-of-alberta-wild-species/documents/SAR-2015WildSpeciesGeneralStatusList-Mar2017.pdf> Accessed January 5, 2018

Pg. 6

Most recent estimate suggests 100 – 250 breeding pairs in Alberta. Disturbance from human-related activities is greatest threat. Because of its low population and dispersal over a large area, nest site protection and inventory are necessary.

Poisoning

Between 2005 – 2012, there was 1 golden eagle death recorded from strychnine poisoning in Alberta's Little Smoky caribou range, reported as a non-target death^{2,3}. There is no way of knowing if more golden eagles were buried by snow and never retrieved.

It should be noted that in Alberta, livestock producers have access to 2% liquid strychnine concentrate, thereby increasing the opportunity for off-label use and stockpiling⁴.

² Alberta Environment and Parks. 2017. Freedom of Information and Protection of Privacy Act Request E17-G-1191

³ Hervieux, D., M. Hebblewhite, D. Stepnisky, M. Bacon, and S. Boutin. 2014. Managing wolves (*Canis lupus*) to recover threatened woodland caribou (*Rangifer tarandus caribou*) in Alberta. Canadian Journal of Zoology. 92:1029 - 1037 [supplementary data]

⁴ COSEWIC Assessment and Status Report on the Swift Fox *Vulpes velox* in Canada. 2009