Summary of Canada Lynx Research within the Contiguous United States
as of April 22, 2002*

Principal Investigator(s) & Affiliation	Focus of Research	Geographic Location	Method	Duration	Comments
Completed Studies					
S. Brainerd (1985, unpublished)	▪ Demography & population dynamics ▪ Movements & dispersal	Northern Rocky Mtns. (Western Montana)	Carcass examination; Radio-telemetry	25 months	18 females w/mean litter size of 3.3; 2 lynx monitored
D. Brittell et al. (1989, unpublished) Washington Dept. of Fish & Wildlife	▪ Community interactions ▪ Demography & population dynamics ▪ Distribution & abundance ▪ Habitat relationships ▪ Movements & dispersal	Cascade Mountains (North-central Washington)	Radio-telemetry	34 months	23 lynx monitored
Hoving (2001, unpublished thesis) Univ. of Maine and Maine Coop Fish and Wildlife Research Unit	▪ Distribution and abundance (historical and current) ▪ Habitat relationships (broad-scale and meso-scale) ▪ Habitat relationships of snowshoe hare	Northeastern US and Maritime Canada (meso-scale analysis in NW Maine)	GIS modeling using museum & historical records, trapping data, and track surveys	1833-1999 Distribution 1987-1999 GIS models	Records of 1,150 lynx from 7 states and 3 provinces and predictive power of 94%, model driven by mean annual snowfall and deciduous forest. Lynx abundant in Maine before 1900. Select regenerating forest over mature forest in Maine. Papers submitted to Northeastern Naturalist and JWM.
Koehler (1990) Washington Dept. of Fish & Wildlife	▪ Demography & population dynamics ▪ Distribution & relative abundance ▪ Relationships with prey	Cascade Mountains (North-central Washington)	Radio-telemetry	25 months	7 lynx monitored
G. Koehler et al. (1979) Washington Dept. of Fish & Wildlife	▪ Community interactions ▪ Habitat relationships	Northern Rocky Mtns. (Western Montana)	Radio-telemetry	8 months	2 lynx; patterns of association with forest types
K. McKelvey, G. McDaniel USFS, RMRS (2001)	▪ Habitat relationships of snowshoe hares	Northern Rocky Mtns. (Island park, Targhee NF, Idaho)	Pellet counts, capture/recapture, winter track counts	2000-2001	Sampled different forest types, stand ages and thinned & unthinned stands; report produced

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K. McKelvey USFS, RMRS; K. Aubry USFS, PNWRS; Y. Ortega USFS, RMRS (2000)	▪ Distribution & abundance ▪ Habitat relationships	Contiguous United States	Museum & historical records, trapping data, track surveys, questionnaire	N/A	3,865 occurrence records & historical distribution; chapter 8 in *Ecology and Conservation of Lynx in the United States* (2000)
K. McKelvey et al. (2000) USFS, RMRS	▪ Habitat relationships ▪ Human impacts	Cascade Mountains (North-central Washington)	Radio-telemetry	76 months	Reanalyzed data from two previous studies (Brittell et al. 1989, Kohler 1990), 1981-1988. 22 lynx monitored; no road avoidance (non-winter); chapter 10 in *Ecology and Conservation of Lynx in the United States* (2000)
S. Mills, K. Pilgrim, M. Schwartz U. of Montana; K. McKelvey RMRS (2000)	▪ Species identification of lynx based on hairs.	Northern U.S.	MtDNA analysis of hair samples	1999-2001	Developed a thoroughly reliable, validated diagnostic test to distinguish among the felids of northern North America.
M. Schwartz & S. Mills U. of Montana; K. McKelvey, L. Ruggiero & F. Allendorf USFS RMRS (2002)	▪ Population dynamics	Alaska, western Canada, NW Montana	DNA analysis	1999-2001	Used microsatellite loci to estimate gene flow among lynx populations; implies persistence of lynx in contiguous U.S. depends upon dispersal form larger populations; connectivity between northern & southern populations important; paper published in *Nature*
J. Shaw & J. Long, Utah State U. (2001)	▪ Habitat relationships of snowshoe hares	Northern Rocky Mtns. (N. Utah & S. Idaho – Ashley, Wasatch-Cache & Caribou-Targhee NFs)	Pellet counts & vegetative measurements	1999-2000	PhD. Dissertation compared snowshoe hare use in thinned and unthinnned lodgepole pine stands; paper submitted to JWM for publication.
D. Smith (1984, unpublished)	▪ Habitat relationships ▪ Movements & dispersal	Northern Rocky Mtns. (Western Montana)	Radio-telemetry	23 months	5 lynx monitored

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Ongoing Studies					
R. Baty MT Dept. Natural Resources & Conservation; D. Ausband U. of Montana	▪ Short term effects of precommercial thinning	Northern Rocky Mtns. Stillwater State Forest, Montana)	Pellet counts & track surveys	2001-2003	Examine short term effects on snowshoe hares from various harvest retention prescriptions
S. Buskirk & J. Zahratka U. of Wyoming	▪ Habitat relationships of snowshoe hares	Southern Rocky Mountains (Colorado – Rio Grande and Gunnison NFs)	Mark & reobservation	1 year beginning 2001 (hoping for additional extension)	Planning to study snowshoe hare survival & recruitment in future phase; some sampling procedures modeled similar to Scott Mills' study in Montana
K. Aubry USFS, PNWRS; G. Koehler WA Dept. Fish & Wildlife; J. von Kienast U. of Washington	▪ Habitat relationships ▪ Relationships with prey and other predators ▪ Food habits	Cascade Mountains (North-central Washington)	Snow tracking and hair snagging	Dec 2000 – Mar 2001 Mar 2001 – Dec 2002	Investigate fine-scale habitat selection by lynx in a landscape composed of unharvested, recently harvested, and recently burned forests.
C. McLaughlin Maine Dept. Inland Fisheries and Wildlife: J. Organ USFWS; G. Matula, W. Jakubas & C. Todd Maine Dept. Inland Fisheries and Wildlife	▪ Determine lynx population viability in NW Maine ▪ Document mortality factors on lynx in NW Maine ▪ Identify habitats used by lynx in NW Maine, including relationships with snowshoe hare distribution and abundance ▪ Investigate relationships between lynx and sympatric predators in NW Maine ▪ Test efficacy of survey methods to detect lynx	Northeastern United States (Musquacook Lakes region, Northwestern Maine)	Radio-telemetry; vegetation surveys, pellet counts, winter track surveys, hair-pad surveys, camera surveys	1999-2003	42 lynx captured; 26 monitored (>2400 locations); 15 kittens handled in 8 litters; 8 den sites described; coyotes, fisher, red fox, bobcat monitored. Study is located on privately-owned commercial forest land.
S. Mills & K. Hodges U. of Montana	▪ Habitat relationships of snowshoe hares ▪ Assess utility of pellet counts for estimating hare densities	Northern Rocky Mtns. (Seeley Lake Lolo NF, Flathead NF, Montana)	Mark & recapture, pellet counts & trapping	2000-2002	Study may be expanded; grants pending.

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Ongoing Studies					
S. Mills & P. Griffin U. of Montana	▪ Snowshoe hare fecundity, mortality, survival and movement	Northern Rocky Mtns. (Seeley Lake, MT)	Radio-telemetry, trapping, ultrasound	1998-2002	May continue beyond 2002 pending availability of funding
S. Mills & P. Griffin U. of Montana	▪ Model snowshoe hare population dynamics in a fragmented landscape	Northern Rocky Mtns. (Seeley Lake, MT)	Utilizing data collected from study listed above (Mills & Griffin)	1998-2002	
P. Griffin & S. Mills U. of Montana	▪ Short term effects of precommercial thinning	Northern Rocky Mtns. (Seeley Lake, Montana)	Pellet counts, snow tracking, radio-telemetry & trapping	1999 – 2002	Examine short-term precommercial thinning effects & a 20% retention experiment on snow snowshoe hare abundance
D. Murray U. of Idaho	▪ Habitat relationships of snowshoe hares	Northern Rocky Mtns. (Idaho Panhandle NFs)	Pellet counts	1999 – 2001	Estimate snowshoe hare densities among various vegetative stand conditions and elevation gradients
D. Murray U. of Idaho	▪ Movements & survival of snowshoe hares ▪ Snowshoe hare foraging relationships	Northern Rocky Mtns. (Priest Lake RD, IPNF's)	Radio-telemetry	1999 - 2002	Compare natural foraging conditions to natural plus supplemental forage (pellets); nutritional and feeding requirements also assessed with snowshoe hares in controlled pens.
D. Murray U. of Idaho	▪ Habitat relationships of snowshoe hares	Northern Rocky Mtns. (Idaho Panhandle NFs)	Pellet counts	2000 – 2005	Compare responses of snowshoe hares to different thinning prescriptions; may run up to 10 years depending upon funding
T. Shenk Colorado Division of Wildlife	▪ Movements & dispersal ▪ Mortality assessments ▪ Prey relationships	Southern Rocky Mountains (Colorado)	Radio-telemetry & snowtracking	Began in 1999 & is ongoing	Focused on lynx reintroduced from Alaska & Canada
K. Shick & J. Goodburn U. of Montana	▪ Habitat relationships of snowshoe hares	Northern Rocky Mtns. (Flathead NF, Montana)	Pellet counts, vegetative sampling	2001	Investigate snowshoe hare densities in stands of varying structural and phase categories; M.S. thesis
J. Squires USFS, RMRS	▪ Human impacts (snow compacting activities) ▪ Interspecific predator relationships	Northern Rocky Mtns. (Northwestern Montana)	Radio-telemetry	2001 - 2003	Investigate the relationship of coyotes and lynx in relation to snow compaction; may go until 2004
J. Squires USFS, RMRS & others	▪ Habitat use & movements ▪ Prey relationships	Northern Rocky Mtns. (Pioneer Mtns. & other areas, Beaverhead-Deerlodge NFs)	Radio-telemetry, snow tracking	2000-2003	No lynx detected or trapped to date; potential prey species w/i area documented; also gathering information on wolverine occurrence

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Ongoing Studies					
J. Squires USFS, RMRS; T. Laurion Wyoming Game & Fish Dept.	▪ Demography & population dynamics ▪ Community interactions ▪ Habitat relationships ▪ Movements & dispersal ▪ Relationships with prey	Northern Rocky Mtns. (Western Montana & Western Wyoming)	Radio-telemetry	Montana – began in 1998 & is ongoing Wyoming – began in 1996 & is ongoing	Montana – 18 lynx radioed (1998) Wyoming – 2 lynx radioed (1996-97)
J. Squires, J. Copeland, K. McKelvey, M. Schwartz USFS - RMRS	▪ Habitat relationships ▪ Highway crossings ▪ Human impacts (snowmobiles/winter recreation) ▪ Interspecific predator competition ▪ Movements & dispersal ▪ Relationships with prey	Northern Rocky Mtns. (Clearwater NF, Idaho; Lolo NF, Montana)	Radio-telemetry, snow tracking, highway mortality assessments	2001 – 2006	Includes gathering information on wolverines and other carnivores
J. Weaver Wildlife Conservation Society	▪ Habitat relationships of snowshoe hares	Northern Rocky Mtns. (Kootenai NF, Montana)	Pellet counts	1996 - 2006	▪ Evaluate abundance & trends of snowshoe hares in a range of stand types & structures ▪ Evaluate snowshoe hare abundance & trends in control & paired precommercially thinned stands under a variety of precommercial thinning prescriptions.

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