National Park Service
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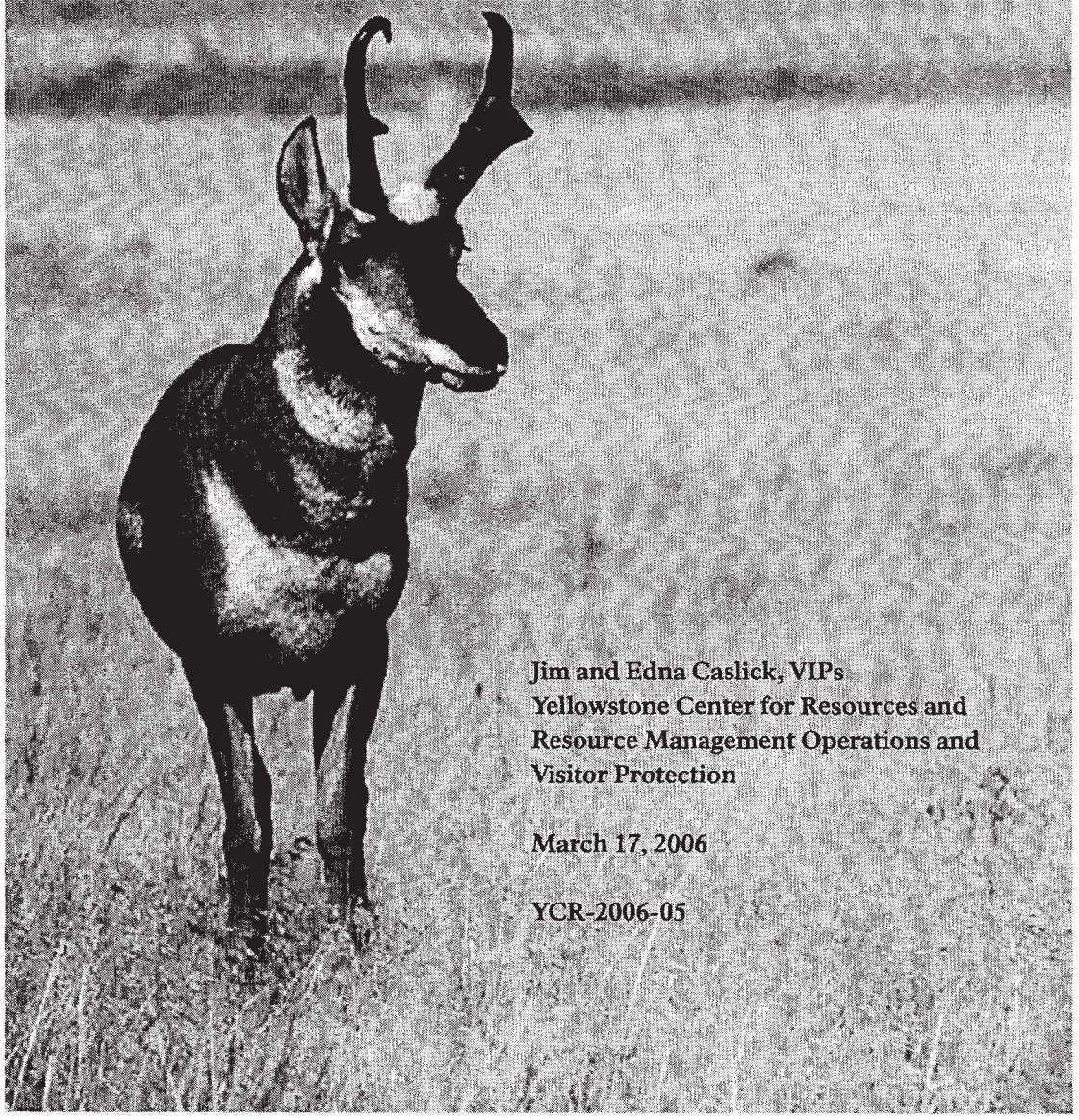
Yellowstone National Park

PRONGHORN DISTRIBUTION IN WINTER 2006



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INTRODUCTION

The August 1990 "Summary of Final Recommendations Made by the Outside Advisory Committee on Pronghorn Antelope Research and Management in Yellowstone National Park" ranked monitoring of pronghorn (Antilocapra Americana) numbers as the highest priority in a listing of eight research needs.

In 1995, I summarized the 1860-1993 counts and management of pronghorns in Yellowstone, and the recent record of the park's pronghorn research projects, publications, manuscripts and biological specimens (Caslick 1995). I urged caution in siting bison management facilities and activities in the Stephens Creek-Reese Creek area, because it has been the core of the 30 km 2 winter range of all Yellowstone pronghorns for more than 70 years (see pronghorn range map, page 5, in Skinner, 1924).

In 1995, as requested by the Branch of Natural Resources, YCR, we modified the pronghorn ground survey method that had been developed and previously used in other seasons by Scott (1993), so that it might be used to survey pronghorn numbers and distribution on their winter range.

In nine subsequent winters, we have used this modified protocol and reported results of weekly ground surveys that we did during the November-March winter months (Caslick and Caslick 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004). Copies of these annual reports are on file at YCR and at the park's Research Library, Yellowstone Research and Heritage Center in Gardiner, Montana.

In 1998, we published an article on pronghorns in Yellowstone Science (Caslick 1998), describing our weekly pronghorn surveys, as well as the history of the herd, recent counts and management concerns.

In 1998-1999, Yellowstone identified pronghorn as a "Species of Special Concern" and listed their conservation as a high-priority need in the park's Resource Management Plan.

In 1999, we summarized our four years of ground counts and made recommendations regarding their continuation (Caslick 1999).

The EIS for the Interagency Bison Management Plan for Montana and Yellowstone (NPS 2000, p. 78) reported that "The Stephens Creek capture facility occupies 13 acres of critical pronghorn winter range, and has had adverse impacts on the antelope population through displacement, disturbance, and blocked movements."

In 2002, a Yellowstone Pronghorn Conservation Assessment Workshop was convened. Keating (2002) reviewed pronghorn population change, management, and research, to provide historical background for workshop participants.

The National Research Council (2002) recommended further study of the role of human effects on this Yellowstone pronghorn herd.

During winter 2005-2006, the period covered by this report, we again conducted the weekly counts along the same route and used the same survey procedure that we have used in 8 previous winters (Caslick, J. and E. Caslick 1996-2004). The YCR's Spatial Analysis/GIS lab prepared the maps of pronghorn distributions (Appendix II).

PURPOSES

The purposes of this survey were to: (1) weekly map and produce a record of Yellowstone pronghorn distribution and numbers on their winter range, and (2) monitor the effects of the bison management operations at Stephens Creek on pronghorn use of their winter range.

METHODS

The principal modifications of the survey protocol developed by Scott (1993) included deletion of the Old Gardiner Road, and deletion of required stops because road pulloffs are not plowed and vehicle traffic is very infrequent in winter. Maps of the survey route and a vegetation map of the Stephens Creek area were included in our Winter 1995-96 report. This year we conducted the survey at least once weekly usually on Wednesday mornings. Following is the survey protocol:

Using a winter-worthy vehicle (preferably 4-wheel drive, high clearance) start the route at Mammoth post office. Drive to the North Entrance, the Arch, then follow the Old Yellowstone Trail past the Gardiner Cemetery. Continue northwestward to Stephens Creek Service Road entrance. Turn southwest on the Service Road and drive past the barn to the bison corrals. Record "Weather at Stephens Creek" on the distribution survey form (Appendix I). Return to the Old Yellowstone Trail and continue northwestward to Reese Creek, past the Royal Teton Ranch property and U.S. Forest Service property, to Corwin Bridge. Cross the Corwin Bridge, then turn right (south) on U.S. Highway 89 and return to Gardiner, Montana.

Along this route, travel at a speed not exceeding 20 mph and stop only if necessary to count pronghorns. Use 7x35 binoculars to count. Record each pronghorn or group on the observation form (Appendix I). For each sighting, record the UTMs, number of animals, habitat type, and whether the pronghorns are on snow. If the group is near enough that all members can be sexed, do so. Keep a list of human activities encountered (vehicles, joggers, photographers, etc.) between the Arch and Corwin Bridge in the right-hand column, for possible use in documenting human-use trends in future years.

UTMs and mapped locations of pronghorns are shown in Appendix II.

RESULTS

Date	Inside the Park			Outside the Park	Total
	Bucks	Does and Fawns	Unknown		
1/23/06	21	47 *(2 collared)*	55	0	123
1/25/06	14	67 *(7 collared)*	53	0	134
2/1/06	15	16 *(2 collared, both with bare necks from ear to shoulders)*	74	0	105
2/8/06	4	10 *(2 collared)*	109	0	123
2/15/06	19	31 *(6 collared, 3 with bare necks)*	65	0	115
2/22/06	7	15	0	0	22
3/1/06	15	135	0	0	150
3/8/06	12	47 *(2 collared)*	26	0	85

On all surveys, all pronghorns were inside the park this winter. Their closest approach to the park boundary occurred on February 15, when 37 were feeding in a formerly cultivated field, 50 yards east of the park boundary at Reese Creek.

Only when a whole herd could be classified, did we do so. Therefore, totals classified may not equal total number of animals observed on that date. Of those classified, the ratio was 39 bucks to 100 does and fawns (combined), similar to the 35:100 ratio in 2004.

Cars and trucks continued to use used the county road that bisects this pronghorn winter range, but no intentional harassment of pronghorns was observed this year.

The bison management operations at Stephens Creek were irregularly scheduled and conducted for varying periods this year, on an "on and off" basis. We were therefore unable to quantify anything about the effect of this activity on pronghorn distribution. However, we again observed that when bison were in the capture pens, few pronghorns were nearby. When the pens were empty, *sometimes* pronghorns were feeding and resting nearby.

HABITAT USE BY GROUPS OF PRONGHORNS

Date	Grass/Forbs	Grass/Shrubs	Cultivated Cropland
January 2006	10	0	0
February 2006	23	0	0
March 2006	18	1	0
Totals	51 *(98%)*	1 *(2%)*	0

Numbers are groups of pronghorns located in that habitat type

Pronghorn groups this year were found only in the Grass/Forbs habitat during January and February and only once in the Grass/Shrubs habitat in March.

COLLARED PRONGHORNS

This year, collared pronghorns were seen on 6 of the 8 surveys; the most seen on one survey was 7. (see Results chart above). Some collared pronghorns appeared to have well-fitting collars that had caused no injury; others had bare necks (no hair), or bare necks and bare shoulders, as a result of loose (floppy) collars. Two collared does had bare necks from head to shoulders, and a very loosely-fitting collar – so loose that the transmitter package bumped her jaw each time she lowered her head to graze. This winter we saw no "old" (1992 and 1993) collars. (see Results chart).

COYOTES

Continuing the sharp drop in coyotes seen since 2000, this year we saw no coyotes during our 7 surveys. Since our weekly ground surveys began, the total numbers of coyotes counted on this route have been as follows:

Year	Total
1996	2
1997	6
1998	12
1999	22
2000	14
2001	12
2002	1
2003	4 *(3 on Feb. 24, 1 on Mar. 10)*
2004	1 *(Feb. 16)*
2005	no surveys
2006	0

NEARBY WINTERING PRONGHORNS

In each of our reports since 1997, we have reported on a herd of 10-15 pronghorns just north of the Gardiner Basin, north of Yankee Jim Canyon, near the junction of Rock Creek Road and the Old Yellowstone Trail (see our reports for winter 1997-2004, inclusive). Residents of the Rock Creek area report that the Rock Creek herd has been there year-round for several years and is known to have produced several fawns. In mid-January 2004, this herd was reported to have 27 pronghorns. This year, residents in that area reported that the herd has "increased considerably," but had no count. There were no reports of pronghorns on the Dome Mountain Ranch, north of Yankee Jim Canyon and east of US Route 89.

On January 22, 2006 a park biologist saw 2 adult does about 1 mile north of Dailey Lake, just behind the arch of Buffalo Jump Ranch road, approximately 14 miles north of Gardiner, MT. Another park biologist saw 15-20 pronghorns in early March on the west side of US Route 89, on the West Mountain Ranch, approximately 22 miles north of Gardiner, MT. These are both new locations for pronghorns wintering near Yellowstone.

MORTALITIES AND INJURIES

Fewer pronghorns were seen at close range this winter than in previous winters. Possibly as a result of lower than usual snow depths at higher elevations in the Gardiner Basin area, pronghorns were generally more distant from our route this year.

No obviously debilitated pronghorns were observed this winter, nor were pronghorn carcasses observed. On March 8, we saw a pronghorn buck that limped badly, favoring his right-front leg. Hair on both his front shoulders was rumpled. (See *Collared Pronghorns* section of this report for collar injuries.)

ESTIMATES OF HERD SIZE

Scott (1993) recognized that his ground count protocol likely resulted in only a partial count, because of rolling topography. Based on land surface visible from the road route, he suggested a 33% correction factor – that is, add 1/3 of the total observed number to estimate the size of the population. At the end of each winter season, we have therefore added 33% to our highest count to estimate the wintering population. We estimate this population to be 200 pronghorns, based on our highest count (150). Our estimates and the subsequent spring aerial counts conducted later by others have been as follows:

Winter	Our winter estimate based on Ground surveys	Subsequent spring Aerial counts by others
1995-1996	255 *(Jan. 22, 1996)*	229 *(Mar. 25, 1996)*
1996-1997	188 *(Dec. 2, 1996)*	210 *(Apr. 21, 1997)*
1997-1998	284 *(Mar. 26, 1998)*	231 *(Mar. 31, 1998)*
1998-1999	227 *(Mar. 22, 1999)*	204 *(Mar. 25, 1999)*
1999-2000	200 *(Mar. 13, 2000)*	205 *(Apr. 3, 2000)*
2000-2001	156 *(Dec. 18, 2000)*	206 *(Apr. 3, 2001)*
2001-2002	136 *(Mar. 18, 2002)*	216 *(April)*
2002-2003	148 *(Feb. 3, 2003)*	219 *(April)*
2003-2004	135 *(Jan. 26, 2004)*	159 *(Apr. 6, 2004)*
2004-2005	no survey conducted	220 *(Apr. 6, 2005)*
2005-2006	200 *(Mar. 1, 2006)*	not yet conducted

SPECIAL VALUES OF GROUND SURVEYS

Weekly ground surveys enable us to observe pronghorns at close range for classification of sex, condition, wounds, collars, and patterns of distribution in relation to general habitat types and human activities. These surveys also allow quantification of use-days of habitats on lands within and outside of the park, for possible consideration in establishing the number of hunting permits in adjoining areas.

Continuing the ground surveys may also be useful in monitoring any changes in habitat use that may result from the recent public acquisition of CUT lands, or habitat changes within the park. The Phase II Purchase lands at Beattie Gulch and the low-elevation Conservation Easement Lands south of Devil's Slide, particularly, have been utilized by pronghorns in recent winters. Removal of fences, public hunting and other recreational uses, as well as changes in agricultural land-use practices there may further influence habitat utilization by pronghorns.

RECENT SHIFTS IN WINTER RANGE

The recent shift in winter range described in our 2004 report continued for this year. In this winter's weekly surveys, we again saw no pronghorns on Target Range Flat or on McMinn Bench until February, where large numbers have sometimes previously wintered. For example, on some winter surveys in 1969-70, 70% of the herd was reported to have occupied those areas. In the early 1990s, the authors of this report frequently encountered pronghorns on McMinn Bench during December ground counts of bighorn sheep.

Another recent localized shift continued this winter. As described in our 1999-2000 report, the increased use of Beattie Gulch by hunters, following the recent public acquisition of former CUT lands, may have shifted pronghorn use away from the big sage areas west of the parking lot at Reese Creek, just west of the park boundary. No pronghorns were observed west of Reese Creek, outside the park, during this winter's surveys.

PRONGHORNS RETURNING TO SUMMER RANGE

Skinner (1924) mapped and described the summer and winter ranges of Yellowstone pronghorns in detail, their periods of occupancy of these seasonal ranges, and their migration routes between Gardiner and the upper Lamar Valley. He pointed out that in Spring, this 30 mile journey may take only three days! We were pleased to witness the beginning of that migration again this year, when we observed 5 pronghorn bucks on the south end of McMinn Bench, just east of the Gardner River, on February 12. On February 25, we saw 3 pronghorn does on the south end of McMinn Bench and 6 pronghorns on the west slope of Mt. Everts, opposite Boiling River parking lot, further indicating the beginning of their springtime migration into the park's interior. About 2 weeks earlier (January 25) we saw several pronghorns just west of Rescue Creek bridge approach the Gardner River, in an apparent attempt to cross, but a helicopter overflight occurred and they "spooked" and abandoned their attempt.

We find it noteworthy that when we began these winter distribution surveys in 1995, only 25% of the wintering herd were reported to go back into the interior of the park for the summer months (Scott 1991). Recent research (Boccadori 2002), however, found that about two-thirds of the wintering population now makes that seasonal migration. This rapid change in the proportion of the herd that migrates may have important ramifications for the future welfare of this herd as well as for herd management options.

APPENDIX I

Sample Pronghorn Distribution Survey Form
Winter 2005-2006

DATE: Start time: End time : Observer/Recorder:	Weather at Stephens Creek Clear: Partly overcast: Heavily overcast:____ Snowing:____ Temp. Comments:	**Habitat Types** GF= Grass/Forbs GS= Grass/Shrubs HP= Irrigated hay/Fenced pasture C= Cultivated cropland	TOTALS # Bucks: Does & Fawns: Unk: Bison:

E - W UTM	N - S UTM	PRONGHORNS				Habitat Type	On Snow?	Behavior	# of Bison	Activity at Stephens Creek		
		Total Number	Bucks	Does & Fawns	Unk					Vehicles On Route	Vehicles	People

APPENDIX II

Pronghorn Distribution Winter 2005-2006

Date	Number of Pronghorn	E-W UTM	N-S UTM
1/23/2006	21	522.8	4985.9
	12	520	4987.4
	25	519	4989.5
	65	517.8	4989.2
1/25/2006	39	523.9	4984.9
	16	523.2	4985.5
	15	522.9	4985.8
	11	520.5	4987.2
	27	519.5	4987
	26	518.6	4988
2/1/2006	5	522.5	4985.5
	15	524.1	4983.9
	16	520.8	4985.5
	7	520.8	4987.2
	7	520.5	4987.3
	5	520.1	4987.1
	12	519.9	4987.8
	7	518.5	4988.4
	7	518.2	4988.2
	24	518.4	4988.5
2/8/2006	10	523.8	4984.9
	3	523.3	4985.2
	40	523	4985.7
	70	519	4987.4
2/15/2006	12	523.8	4985.1
	3	521.5	4986
	7	521.1	4986.5
	37	520.1	4986.8
	19	519.4	4988.1
	37	517.6	4989.9

Date	Number of Pronghorn	E-W UTM	N-S UTM
2/22/2006	7	521.5	4986.6
	4	518.5	4988.5
	11	517.9	4989.1
3/1/2006	2	523.4	4985.1
	27	521.5	4986.2
	13	521.2	4986.6
	42	518.2	4988.2
	53	518.2	4988.1
	13	518.9	4988.5
3/8/2006	6	523.3	4985.5
	10	522.1	4986.1
	6	521.5	4986.8
	4	520.5	4986.4
	9	519.9	4987.1
	6	520	4986.8
	7	519.3	4987.8
	10	519.9	4988.1
	2	518.6	4987.2
	1	518.1	4988
	1	518.5	4987.5
	8	519.5	4988.2
	17	518.5	4989.2

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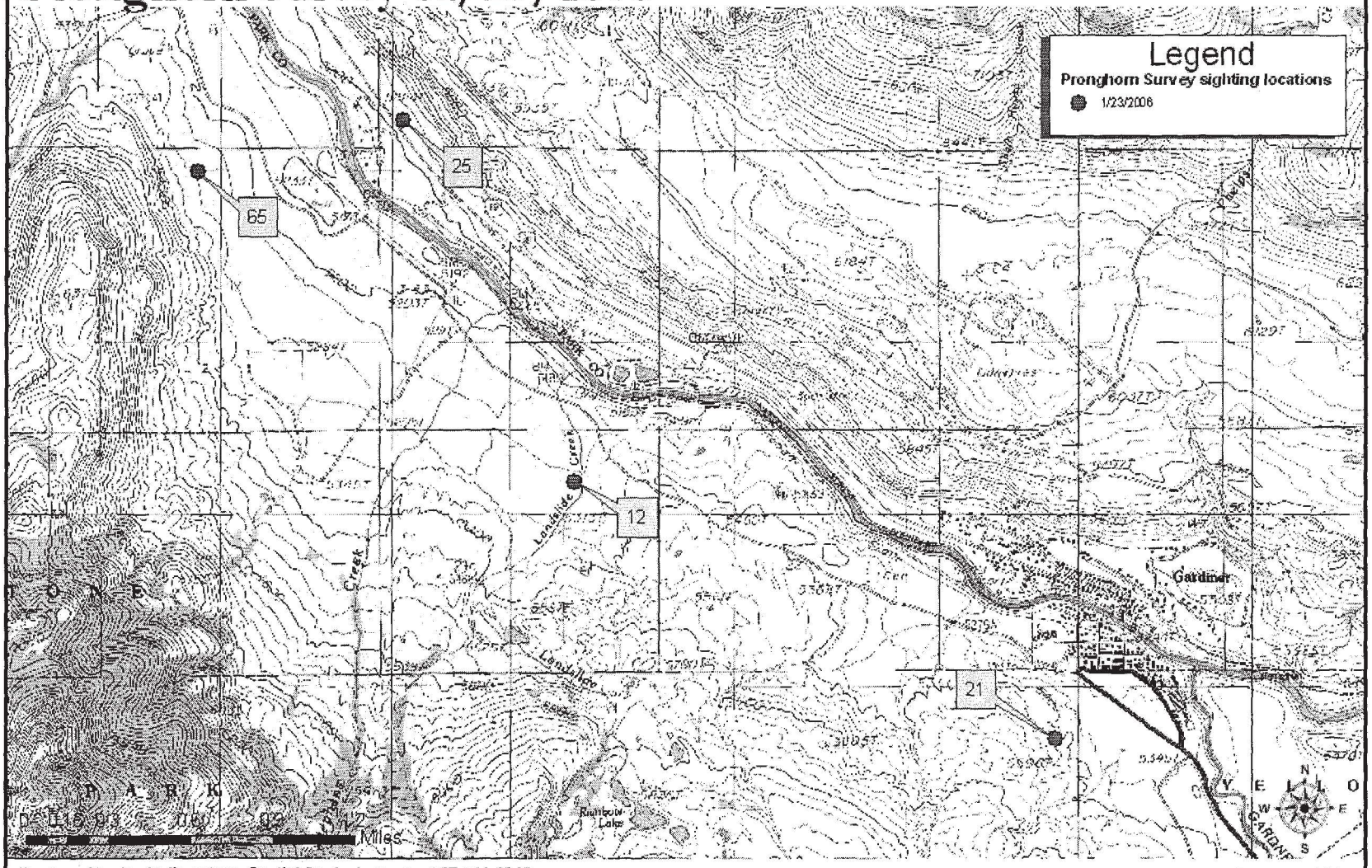

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March 2006

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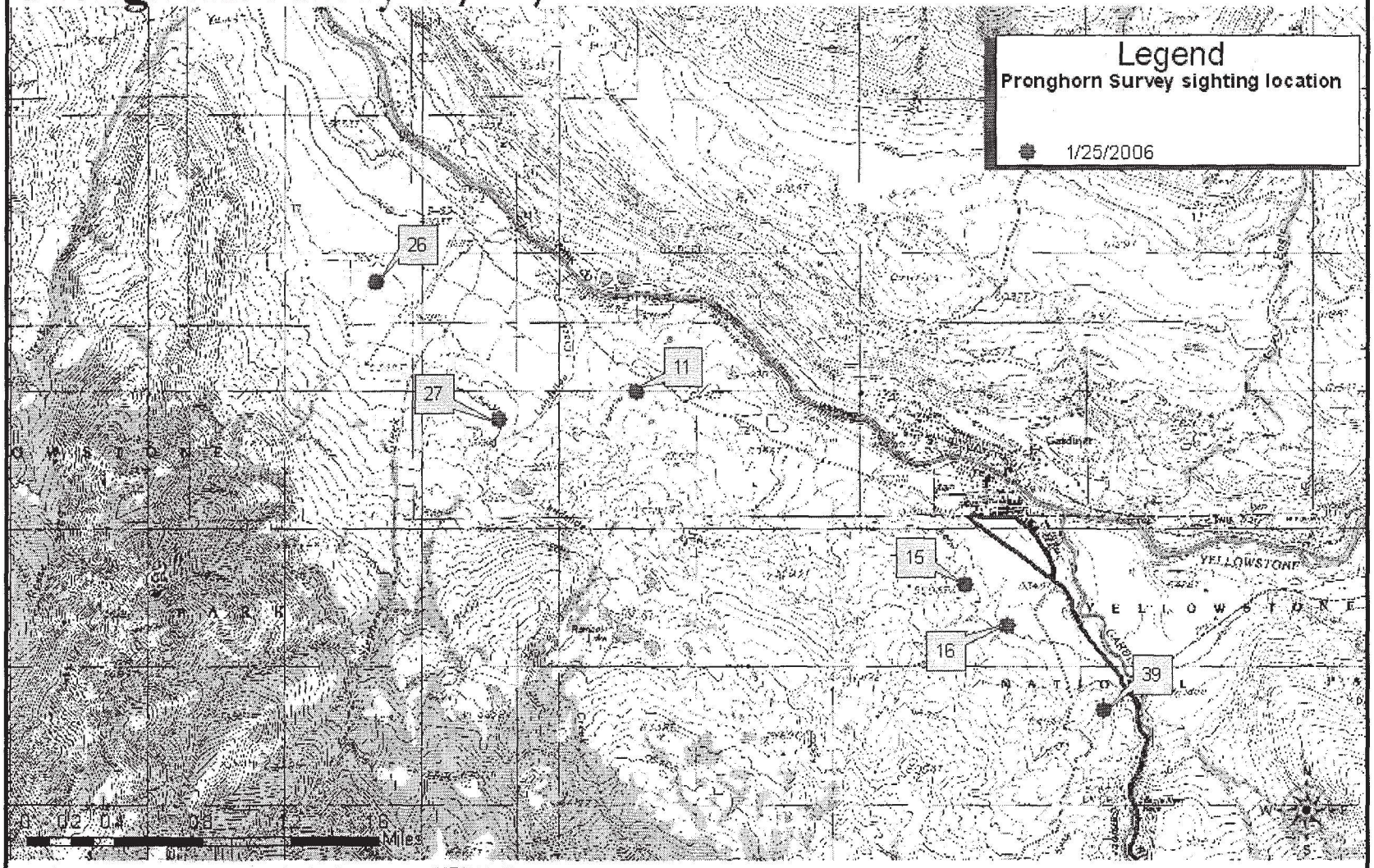
Pronghorn Survey 01/25/2006



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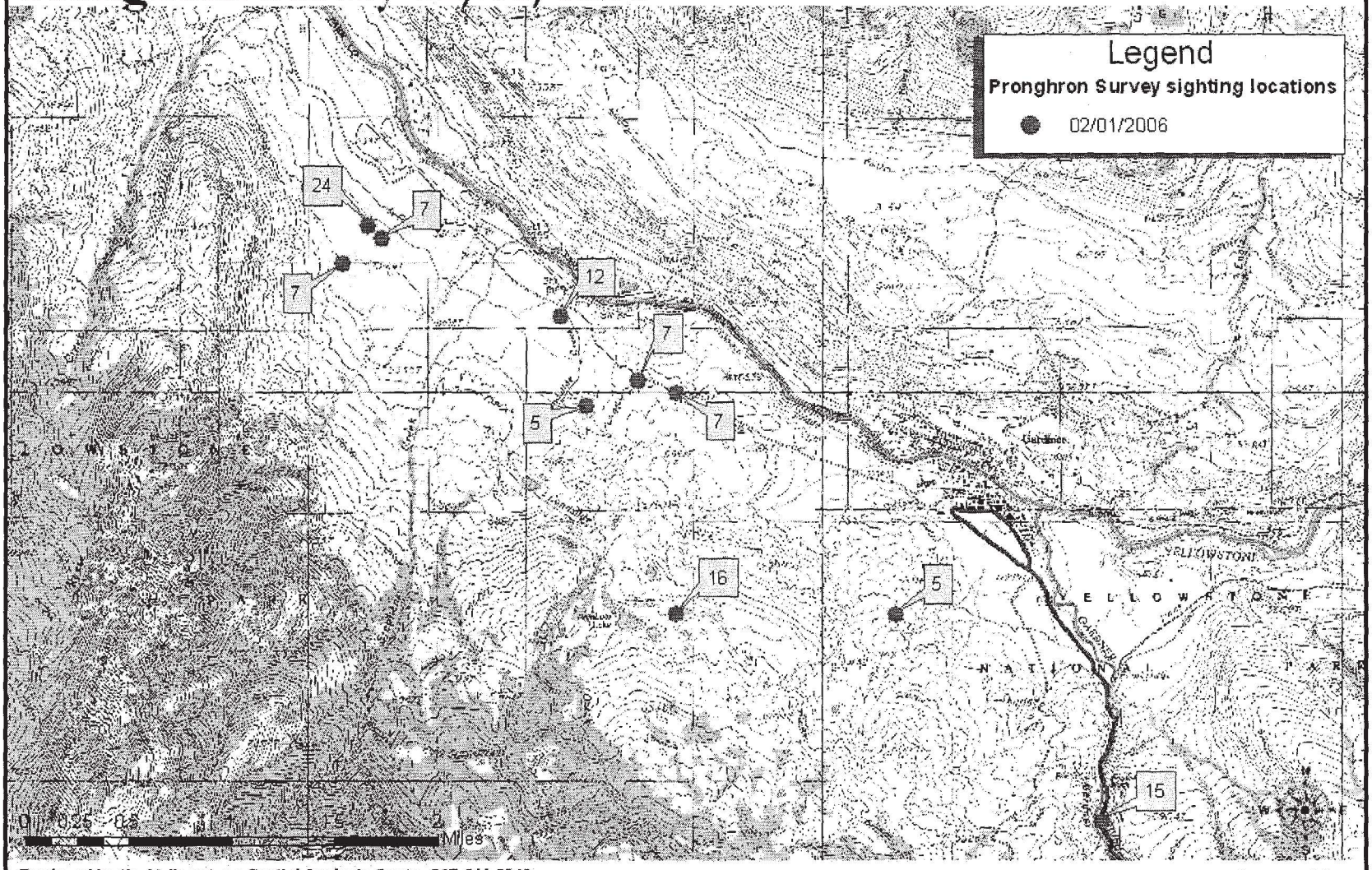

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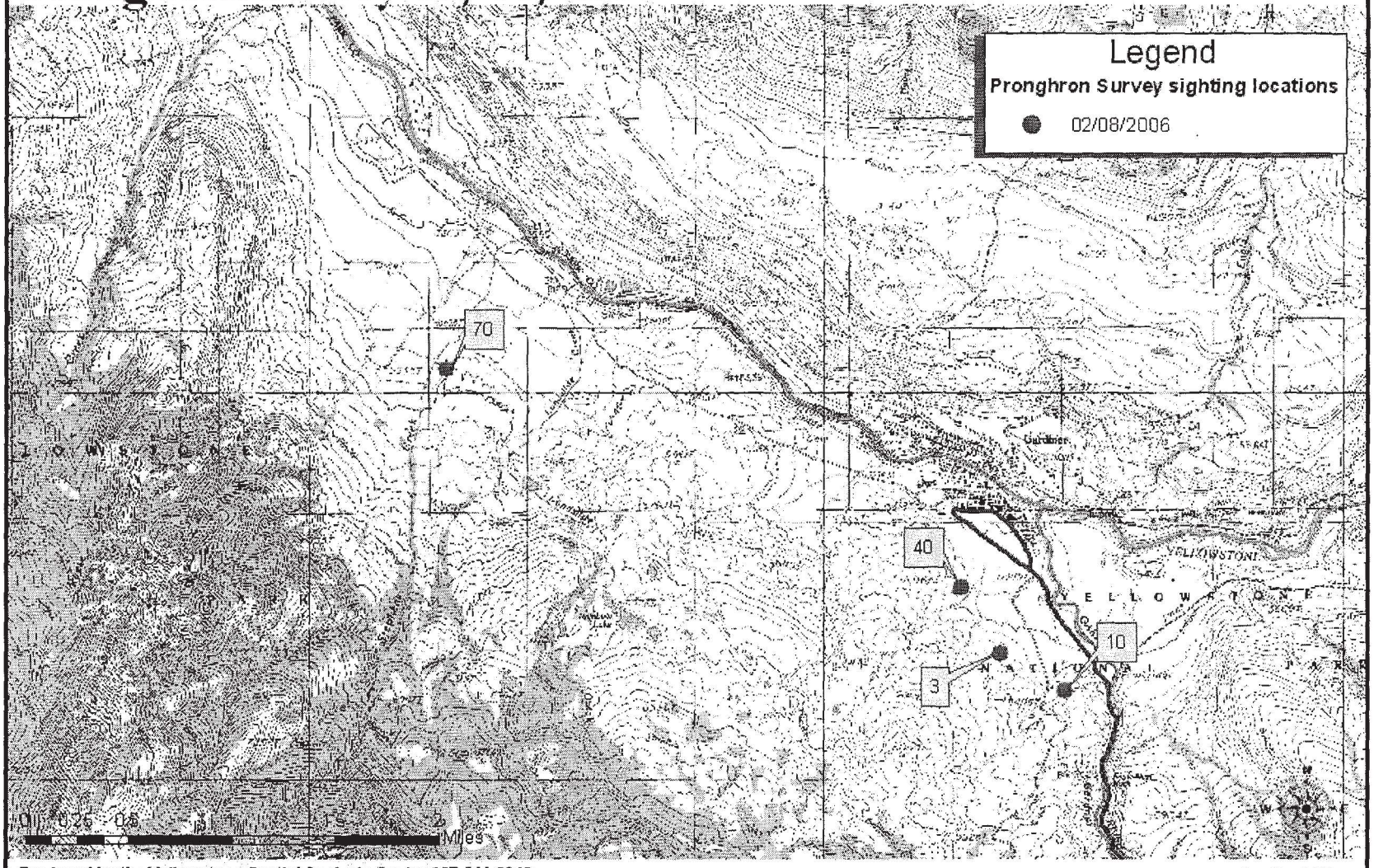

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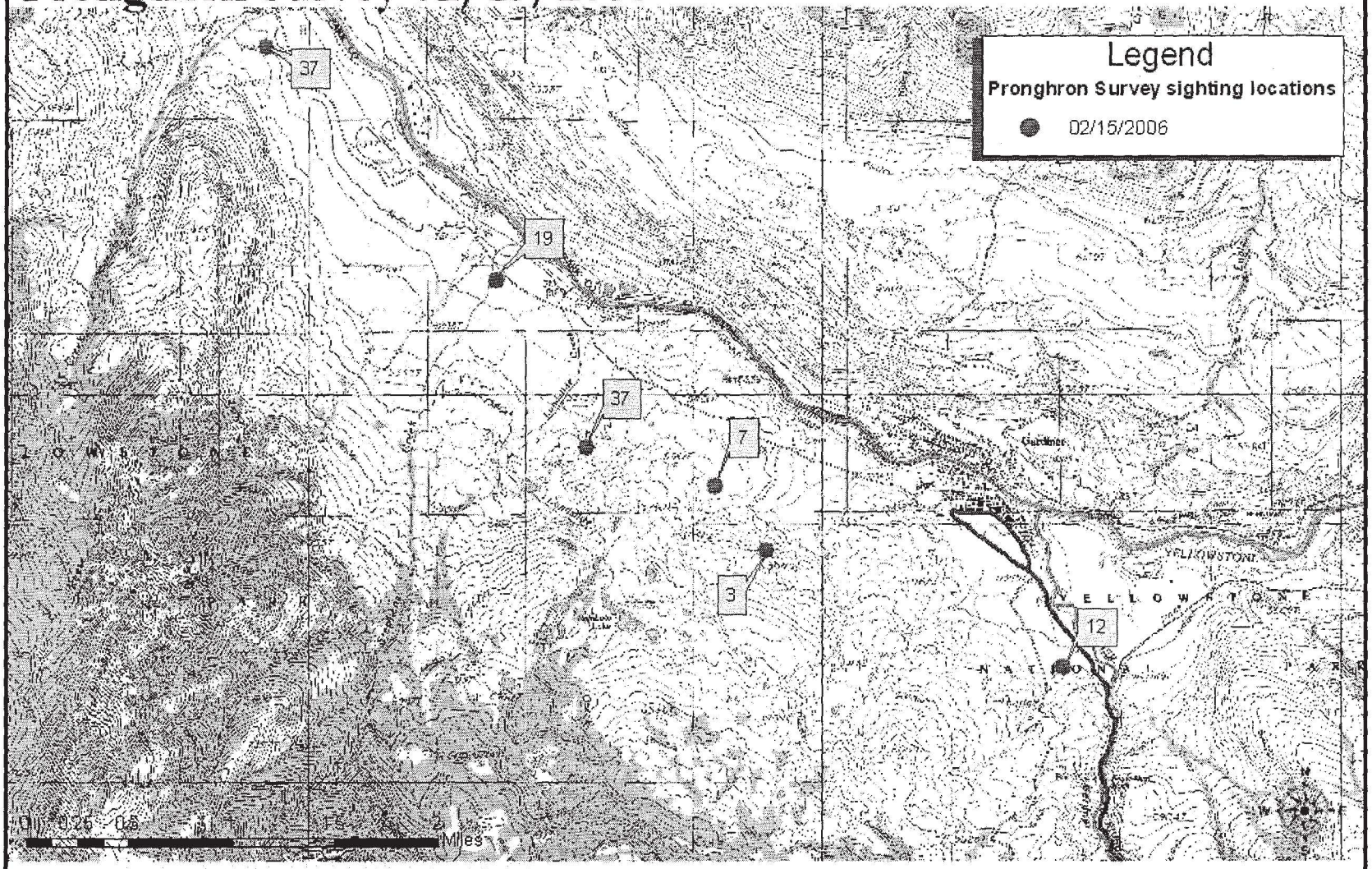

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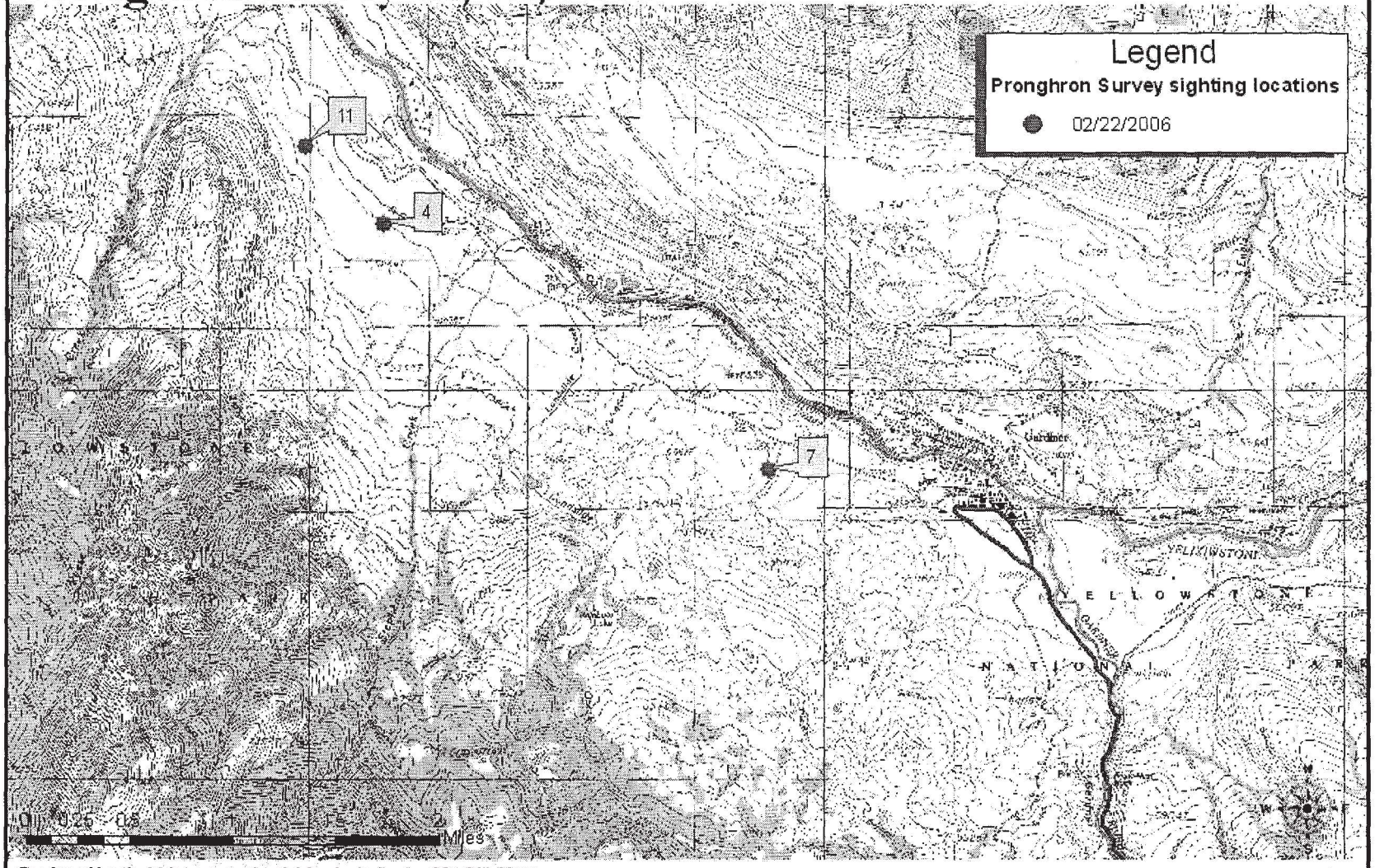

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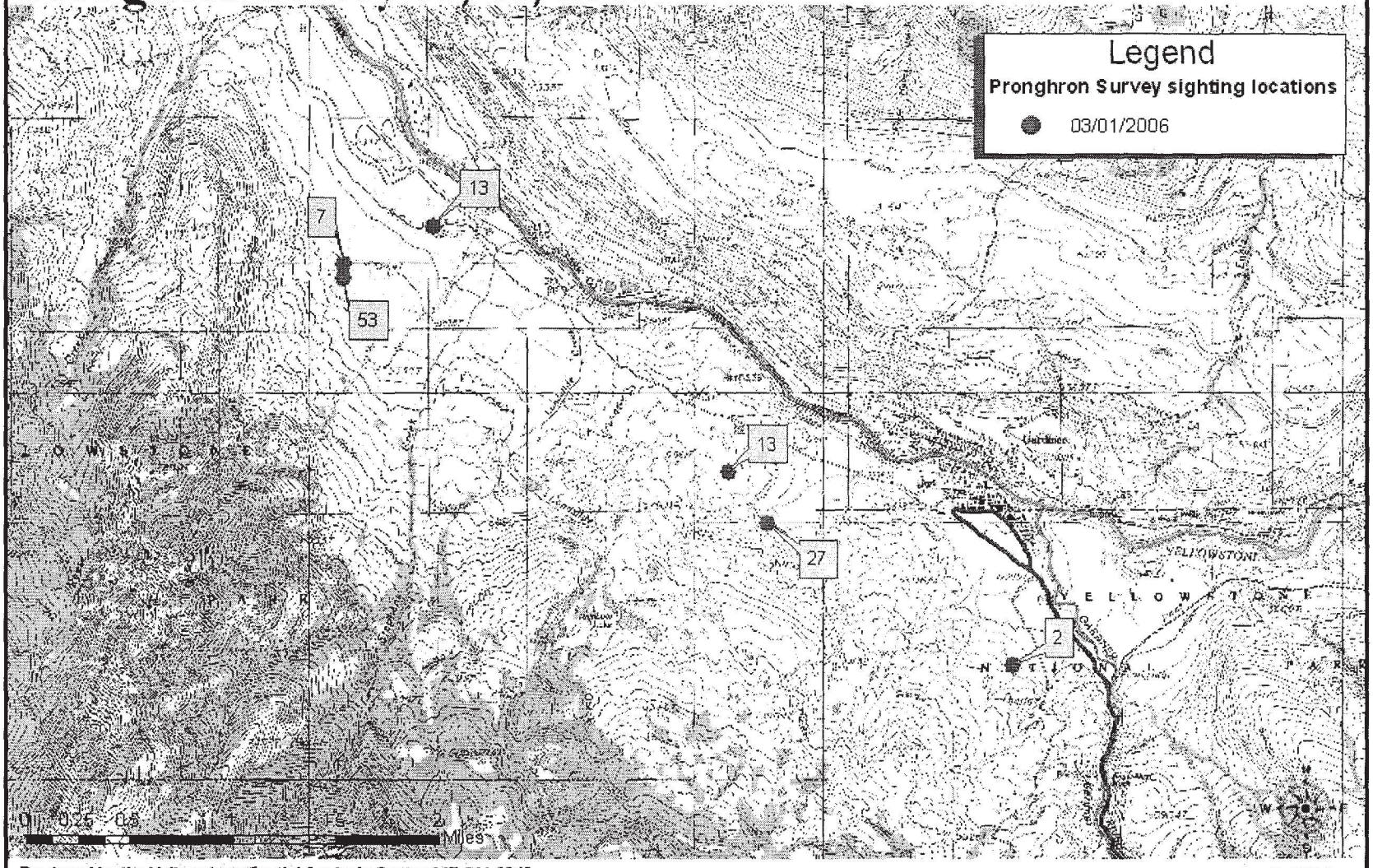

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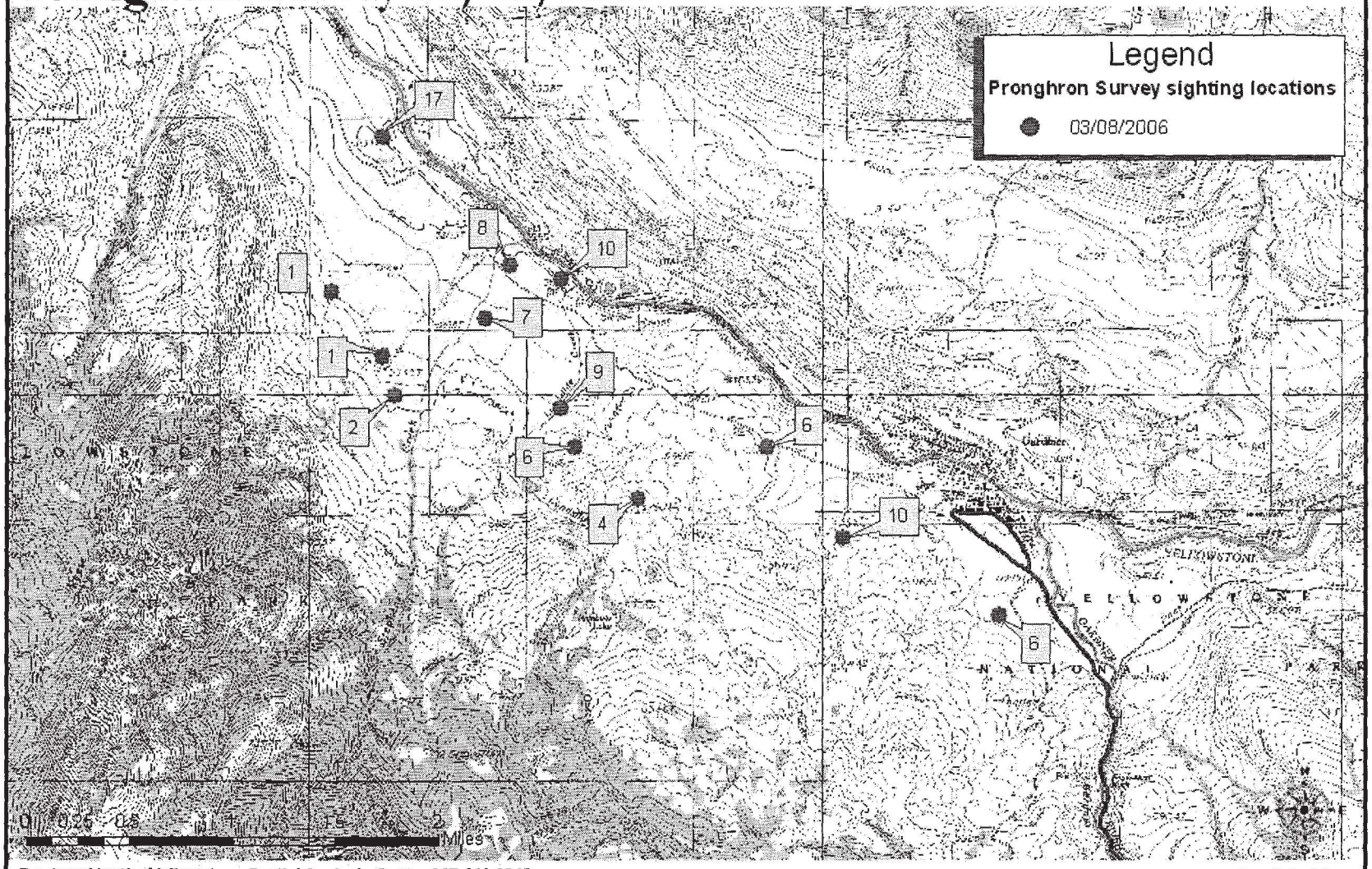

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