Jackson Hole Conservation Alliance

June 23, 2009

To: Town of Jackson and Teton County Planning Commissions, Teton County Board of County Commissioners, Town of Jackson Town Council, Jackson and Teton County Planning Departments.

Dear appointed commissioners, elected officials and planning team,

On behalf of the Jackson Hole Conservation Alliance, thank you for your attention to the following report and for the opportunity to submit preliminary research on the wildlife and scenic values in the South Park area as part of the Comprehensive Plan update process.

The Conservation Alliance believes that planning decisions for our county's dwindling undeveloped private lands should be based on the best available information, research and science. As we determine the growth patterns and the community's priorities in the different districts of Jackson and Teton County, it is important to base our decisions on the best available information. Additionally, when this information is outdated or incomplete, which is not uncommon, we believe planning should err on the side of caution, particularly given the community's top priority – to protect wildlife and promote stewardship of the Greater Yellowstone Ecosystem.

This report focuses on South Park because it is slated for the most potential residential development of any district in the draft Comprehensive Plan, released 04/13/09, and because the new draft plan places very low priority on the protection of wildlife and scenic values in the area. This low prioritization represents a significant departure from our community's existing 1994 Plan. Due to the drastically proposed changes in land use in the district, we believe it is first critical to take into account the area's documented and under-studied wildlife and scenic resources before the community considers a plan that stands to eliminate those resources and values.

The enclosed report is simply a first step. It is a summary of readily accessible environmental reports, studies and documentation from the past 30 years that refer to the wildlife and scenic resources in South Park and along the proposed Tribal Trails connector road. While it demonstrates that much of the available data is old or incomplete, and that more complete data collection and comprehensive analysis is warranted, this summary also reveals that the area includes high wildlife and scenic values. Also, given the historical importance of the South Park area for scenic preservation, this study (which includes a review of the 1994 Plan) reveals how differently the new plan addresses scenic resources. This shift is a broad concern, but it is strongly demonstrated in the new draft plan's proposed South Park district.

In general, this report intends to initiate discussion on the directions for future growth outlined in the draft plan and to what extent these proposed directions were guided by the best available information. Please see the enclosed report for more detailed information, and feel free to contact us with any questions.

Sincerely,

Franz Camenzind
Executive Director

Becky Tillson
Community Planning Assistant

The greater South Park region: A Summary of Wildlife and Scenic Resources

Franz Camenzind

"Certain of the wildlife habitat found on private lands is so essential that the value and importance of the adjacent federal lands can be substantially diminished if it is lost or impaired." (P.H. Consulting, Inc. 1988)

"…we simply need to recognize that a development at this [high] density has irreversible impacts that are cumulative in nature on wildlife…" (Roger Smith, 2008)

"…virtually all of South Park is important to wildlife." (Bio/West, 1983)

Jackson Hole Conservation Alliance

Partnering for a Wild & Beautiful Valley

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Title: The greater South Park region: A Summary of Wildlife and Scenic Resources

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Prepared by: The Jackson Hole Conservation Alliance
Prepared for: Citizens, Teton County Board of County Commissioners, Jackson Town Council, Jackson and Teton County Planning Commissions, Jackson and Teton County Planning Departments.

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Franz Camenzind

Preface:

Jackson and Teton County are rare in their abundance of natural resources. The scenery, open space, agricultural lands, recreational opportunities, public lands, and the abundant and diverse native wildlife define the character of this remarkable area. The decisions that we make regarding the future of our community *must* occur within this unique context.

The Jackson Hole Conservation Alliance has long been an advocate of our community's top priority, the "stewardship of wildlife and natural resources." This priority is stated in both the 1994 Comprehensive Plan and the April 2009 draft of the Jackson/Teton County Comprehensive Plan. Unfortunately, despite a broad intention to protect wildlife, the new draft plan proposes development patterns and intensities that do not adequately reflect the will of the community and would not enable adequate measures for wildlife protection. In addition, these proposed patterns and intensities appear to ignore the extensive documentation of existing data and information.

This report will catalogue the wildlife and scenic resources in the area between the National Forest Boundary near highway 89 to the Snake River, and between the southern end of South Park Loop Road and Highway 22 (the "study area"). Within this study area there are two districts as outlined in the draft Plan (District 12: South Park and District 5: Eastbank). Further, this report primarily focuses on two subareas that are posed for major development and road construction; 1) the area within South Park Loop Road, and 2) the area encompassing the potential Tribal Trails connector road.

Jackson/Teton County Comprehensive Plan Draft released 4/13/09. "District 12: South Park" and "District 5: Eastbank" district maps.

Introduction

Balancing competing objectives – preservation and development – is a monumental task. South Park and the adjoining lands in the study area typify this dilemma. The community

has historically supported some residential development in South Park in exchange for real community benefit, in the form of open space and workforce housing. For example, Melody Ranch was approved based on a condition to secure over 600 acres in permanent conservation as part of the development. In this case, in order to balance permanent conservation and development, lands within the South Park area were permanently protected. In contrast, the new draft does not include strong language to require significant permanent conservation alongside any additional residential development in South Park. Overall, South Park is a microcosmic representation of the struggle in Jackson and Teton County between preserving and protecting wildlife, scenic vistas and habitat, and providing for our community's housing needs.

In line with documented community will, the Jackson Hole Conservation Alliance has consistently supported the idea that the northwest corner of South Park is a logical place for additional residential development, as stated in the 1994 Plan. The Conservation Alliance is concerned, though, with the geographic scope and amount of potential development proposed in the greater South Park region in the new draft. The draft Plan proposes up to 1,500 units in northern South Park, and includes unclear language about the extent to which the remainder of District 12 should be slated "as an extension of the town development pattern." *By allowing for dense development in the northwest corner, and without prioritizing the preservation of wildlife, scenic and natural resources in the remainder of District 12, the new draft leaves an open door for similar levels of density throughout South Park in the future.*

The new draft also makes a critical departure from previous planning documents, including the 1994 Plan, by downplaying the importance of wildlife and scenic values in this district. In general, the new draft drastically underemphasizes the importance of scenic preservation in comparison to the 1994 Plan, and, more specifically, it removes reference to South Park as an area important for scenic preservation. See Appendix D for more examples of this departure from the 1994 Plan. This low level prioritization of wildlife and scenic resources in District 12 is of key concern.

In addition, the new draft includes a proposal for the construction of the Tribal Trails connector, designed to alleviate traffic at the "Y" intersection of Highways 89 and 22. Prior to moving forward, the Conservation Alliance believes it is critical to make sure that decisions such as this one are made with the best available science on habitat types and wildlife movement in the area. Sufficient transportation modeling should also be conducted at a system-wide level to evaluate whether the benefits from new road construction outweigh the costs; the new draft as a whole does not include adequate transportation impacts analysis. The role of adjacent conservation easements, and potential impacts to their function, should also be considered in such an evaluation. In regard to the proposed Tribal Trails connector, the Conservation Alliance is concerned with the impacts of this road on the lands it will be fragmenting, as well as on the scenic resources and resident and migratory wildlife.

Taking a broad, zoomed-out view of the valley, the Conservation Alliance asserts that planning in the greater South Park region should not be carried out in a vacuum, isolated

from the bigger picture planning issues in Jackson Hole. As the community determines how, where, and in what amount Jackson and Teton County will grow for the next decade or so, it is important to take into account the cumulative impacts of that growth. The amount of development targeted for Districts 5 and 12 stands to have significant community-wide effects that extend well beyond the borders of the study area.

Statement of Purpose:

Given that the community's top two priorities are to protect wildlife and manage growth responsibly, decisions concerning future growth and development should be based on the best available science. A first step in that process is the collection and documentation of existing data regarding the wildlife and scenic resources that rely upon and are held in private lands. This data should be used to inform our land use decisions and to fulfill our valley-wide commitment to first uphold our community's number one priority, "stewardship of wildlife and natural resources," as we move forward, and to make decisions within the unique and delineated context of that top priority.

The new draft Plan features a district-by-district ranking system for the community's seven identified priorities. In District 12: South Park, **"**wildlife and natural resources" is the sixth (second to last) priority. As previously stated, this is a significant departure from the values attributed to South Park in the 1994 Plan, and a clear deviation from current community sentiment about the importance and presence of these values in the South Park area. Also, agricultural values in the region that have historically helped to define community character do not appear to be considered in the new draft's language regarding South Park. The new draft's policies and maps *do not* recognize the wildlife *and* scenic values throughout the greater South Park region that have been consistently documented (see Appendix A).

District 5: Eastbank, which encompasses the east bank of the Snake River, includes provisions for the Tribal Trails connector road. In this district, adjacent to the Snake River, "wildlife and natural resources" is ranked first, followed by "transportation." Largely rural, and to a great extent protected by conservation easements, this district is slated for minimal development and a preservation of scenic and rural character. The impacts of constructing a road in this area should be considered in terms of wildlife and rural character. If impacts occur, it could run contrary to the successful implementation of the stated top priority for the district.

It is important to make growth and development decisions with a clear understanding of the cumulative impacts of those decisions. Choices should not be made in isolation from one another, considering only discrete districts. The community is making choices in the context of the unparalleled place that we live, a nationally recognized and irreplaceable valley defined by its wildlife and scenic resources. Teton County is in the heart of the Greater Yellowstone Ecosystem and the Town of Jackson is the gateway to our two National Parks. We have an unprecedented stewardship responsibility for this land and for all future generations, including residents and visitors.

Methods, Goals and Observations:

In this report, two areas are highlighted - the area within South Park Loop Road, and the area encompassing the potential Tribal Trails connector road - and examined within the larger context of the study area. Although neither the impacts of growth and development nor habitat connectivity areas end at jurisdictional borders, we chose to focus on these two sub-sections of the study area because of the type and amount of development proposed in each of them. Because the subareas themselves have significant data gaps, studies and reports from the entire study area were included in Appendix A.

This study area includes many properties, big and small, with a wide variety of uses, from gravel mining (with temporary designations) to a private golf community to conservation easements, ranching and single-family homes. Many of the sites, from the 1970's until the present, have undergone some sort of environmental review, whether it is a summary of wildlife and scenic resources, or a more formal environmental assessment, or a baseline inventory. A number of compilation studies were also available that are not specific to a particular site. Comprehensive data from wildlife-vehicle collisions is also available, but has not been adequately incorporated into the draft plan.

Appendix A includes an extensive catalogue of studies, reports and data from the past 30 years that attend to South Park and the Tribal Trails areas. While this catalogue is not a completely exhaustive list of every environmental assessment that has been conducted, it does provide a good starting point for gaining a better understanding of the region's resources. At the very least, our community should base future land use planning on these types of available data. Data collection is a critical first step in defining future, informative research.

This report represents an initial and preliminary first step to compile available resources that document both wildlife and scenic resources in the area (see Appendices). Appendix A is an annotated bibliography of many of the data and information sources available regarding the study area, with references to the attachments in Appendix B. Appendix B includes numerous maps, images and studies regarding road kill hotspots, habitat types and movement corridors. Appendix C is an inventory of the wildlife species listed in the reports and studies. Appendix D includes sample language from the 1994 Plan, which points to values of the South Park area.

Summary of Findings:

Wildlife

Through an examination of numerous reports and assessments pertaining to the study area, several points of consensus were established among a cross-section of the data. Elk, mule deer and moose use the area for annual migrations, daily movements, and minimal foraging. Raptors use the open agricultural fields for foraging, and the cottonwood and aspen stands for resting. Songbirds and migratory birds use the region, particularly the wetlands and riparian areas, for feeding and resting. Waterfowl, amphibians and reptiles utilize the wetlands, rivers and riparian habitats along Fish, Cody, Crane, Indian Springs and Spring Creeks, Wilson Ditch, and Susannah Slough, and the myriad other canals, irrigation ditches, and temporary or seasonally irrigated areas. Some of the spring creeks

in this area also serve as spawning grounds for the Snake River Cutthroat Trout. Cumulatively, these habitats contribute to the overall ecological health of the larger Snake River ecosystem. Please refer to Appendices A and B for more site-specific wildlife values.

Roads & the Human/Wildlife Interface

Roads have long been recognized as features that break up habitat connectivity for many wildlife species. According to Jackson Hole Wildlife Foundation (JHWF) data and reports, roads bisect and eliminate habitat, reduce connectivity and increase animal mortality (ungulates were the focus of the JHWF 2003 studies). According to their reports, because "most large mammals residing in Teton County must cross roads in order to access habitat and meet their daily, seasonal, and life needs," the increased presence of roads necessarily increases the impacts of each of the roads.

As more roads are proposed, including both the Tribal Trails connector and the roads that will surely accompany further potential development in South Park, it is important to take into account the location of the roads and their potential impacts on wildlife. The amount of development projected for South Park will have enormous impacts on the overall transportation demand in Jackson Hole. With increased demand resulting from higher resident populations, the pressures for new road construction and road widening will intensify.

According to the JHWF data, *roads in the study area represent some of the highest fatality rates for large ungulates in Teton County.* While there is not much data regarding ungulate use of private lands not protected by easements, there is documented evidence of ungulate movement across the roads and through the study area. Specifically, both the Highway 22 area proposed for the Tribal Trails connector, and Highway 89 near the junction with Game Creek have been considered appropriate areas to construct wildlife overpasses, due to the high ungulate use and road mortalities in those areas. Wyoming Game and Fish Department has also designated the area flanking Highway 22 from Town to Wilson as crucial range for a variety of wildlife species and an enhancement area for future rehabilitation work. Maps 3 and 4 and 6, 12 and 13 in Appendix B represent some of the most compelling and comprehensive data sources available, demonstrating the value of the study area to wildlife, in particular to ungulates.

Roles of Permanent Open Space Protection & Impacts on Public Lands

Reports in Appendix A document that the establishment of one easement or protected habitat accentuates the value of the surrounding easements or protected habitats. For example, while the 3.5-acre Teton Science School easement adjacent to the Indian Springs Ranch easement may itself not contribute greatly to habitat connectivity, taken together with the surrounding acres of protected land, its individual value to both wildlife and the preservation of scenic vistas is exponentially increased. The Jackson Hole Land Trust's 2007 Baseline Inventory of the Valley Springs Ranch in South Park also clearly establishes the accentuated value of contiguous, ecologically-linked protected lands.

This sort of protection will only become more critical as development pressures continue to mount. The same is true of development-related impacts, which necessarily spill over onto adjacent lands. Additional development exponentially increases the impacts of existing development, thereby degrading the value of adjacent protected or undeveloped property. Also, studies confirm that large new residential developments have significant impact on the level of use seen on adjacent public lands. This has certainly been the case for East Jackson, where levels of use and impact on the adjacent Cache Creek have increased over the past fifteen years as the town has grown. This growth has led to many wildlife/human and user conflicts in the area, and the development of restrictions by the Bridger-Teton National Forest to curb those impacts.

Habitat Connectivity: North-South

A north-south habitat connection throughout the study area was also a common theme. In order to maintain migration routes and continuous, contiguous habitat through South Park from the Hoback Canyon to the National Parks, National Forest Lands and National Elk Refuge to the north, development must occur in a way that allows for the requisite open space. There is a significant amount of research that documents the needs and sensitivities of various species, in terms of corridor width, vegetative protection, and absence of artificial light, dogs, and other human development-related impacts that interfere with wildlife movements.

Habitat Connectivity: East-West

Numerous reports refer to the importance of east-west habitat connectors, or movement corridors, particularly between the Flat Creek and Snake River corridors. Historically, during discussions on South Park planning, local biologists have referred to the importance of an east-west corridor. For example, an August 29, 1989, Jackson Hole News article stated the following; “Campbell said South Park development should leave some east-west corridor through which animals can pass or use to leave developed areas when they wander in. ‘To allow access to the slopes or possibly to the river bottom, some sort of corridor should be there.’ Campbell said.”

Scenery

Lastly, scenic resources in the study area are long and oft-documented values in the community. Much of the area is within prominent valley viewscapes, connecting vistas of buttes to the more distant Teton mountain range. Rural development, agricultural fields and open space provide for a sense of small town character at the southern and western gateways to the Town of Jackson.

The true gateway from the south to both Town and resort facilities, South Park has been epitomized by its scenic hayfields and long-range vistas of the mountains. It is one of the most widely noticed and clearest materializations of our rural character. With the adoption of town-level densities and height allowances, we risk obstruction of the viewshed in South Park. Recent developments that have permitted greater height allowances have had significant visual impacts. In the 1994 Plan, the south gateway to the valley was considered paramount to preserving the western character and scenic values of Jackson Hole. The new draft expands commercial uses in the area and removes

emphasis on the importance of preserving the scenic and rural character of this southern gateway. Additionally, in much the same way as South Park, the Tribal Trails area, as a gateway from the west, accentuates and further defines the rural and agricultural character of the Town and County.

Data Gaps:

Private Lands – General

In 2007-08, the Conservation Alliance contracted with the Teton Science Schools Conservation Research Center to compile the best available science on wildlife habitat in Teton County. Prior to this effort, information had not been compiled since the early 1990s (which was used for the 1994 Plan process). There are several large data gaps in the study area and in Teton County generally. Also problematic is that there is no consistent, long-term ecological monitoring program on private lands, or a vegetation map of private lands. There is also still very limited data on specific ungulate movements throughout the County (although wildlife-vehicle collision hot spots can provide information on frequented routes). Despite these gaps, the contracted work mentioned above has been made available to inform the comprehensive planning process, but it is unclear as to how it was incorporated into the plan.

The studies and baseline vegetation data that are currently lacking are greatly needed to help monitor changes in habitats over time, ensure adequate habitat protection for different species, and determine the best locations for and appropriate amounts of new development. For example, without documentation of vegetative cover and habitat structures, and clear goals to preserve certain levels of historical and existing habitat types, the integrity of overall habitat can be incrementally lost for a number of species. While the new Plan calls out for the importance of monitoring and assessing impacts to wildlife, it cannot implement this strategy, or the overarching top priority of the community, without the underlying fundamental first step to acquire baseline data.

Data gaps aside, as we move forward, we should base land use decisions on the best available science, which would include a consideration of the role of direct, indirect and cumulative impacts. The new draft's Future Land Use Plan proposes nearly parcel-specific maps for individual districts without the inclusion of an underlying amended and updated natural resources map. Particularly given the specificity presented in the proposed district maps, identifying 1) documented sensitive environmental resources and 2) geographic or species-specific data gaps, are critical steps to take prior to the adoption of such detailed future land use plans. The natural resources overlay should be updated before important and irreversible development decisions are made.

The new draft takes a step in the right direction by acknowledging the need to amend the natural resources overlay to be based on a higher number of indicator species. In 2007-08, as part of the contracted study with the Conservation Research Center, interviews and conversations with biologists indicated that additional habitats and species should be considered for protection within Teton County. *Given the top priority of the community, these habitats and species should be considered prior to the formation of detailed future land use plans. For example, given the presence of many species in South Park (see*

Appendix C), this region could provide important functions for other potential indicator species, such as raptors.

In reviewing the current natural resource overlay maps, and since-updated maps of Wyoming Game and Fish, it is important to understand that a map depiction of an "absence of use" by wildlife does not necessarily indicate the area lacks importance for wildlife. It may simply mean that no research is conducted in the area, which is a common occurrence on private lands. For example, the Wyoming Game and Fish Department does not conduct research in several developed areas including the incorporated areas of Wilson, Jackson, and Teton Village, or along Highway 390. Interestingly, the new draft's proposed nodes overlap with areas where research is lacking. In addition, the planning process does not take into consideration that some of these developed areas, such as the Seherr-Thoss property, although surrounded by development, could become critically important should wildlife disease issues force the future closure of the South Park elk feedground.

South Park

Much of the data and many of the studies cited in Appendix A are years old, and should be consistently complemented and updated with new information. As in other areas of Teton County, if wildlife and scenic resources are to be protected, they must first be documented. That said, considerable recent data exists that points to the utility of this area for wildlife, such as wildlife collision data and recent baseline biological inventories. In addition, a number of citizen observations of wildlife are consistently reported in this region. Unfortunately, to date there has been no structured framework through which citizens can document observations on private lands. Naturally, citizens that have continued access to long-term monitoring of specific private lands parcels could play a critical role in evaluating their role for wildlife.

In the greater South Park region, there are some areas where data is simply not available. In some cases, private and undeveloped lands that are not in conservation easements do not have published reports pertaining to their scenic and natural resources. In other cases, such as in the industrial and commercial developments on the east side of Highway 89, the most recent developments were exempt from any sort of environmental review because they were already impacted sites. In this particular case and location, all of the development is within the natural resources overlay (NRO) and crucial mule deer winter range, but was not required to undergo any sort of official environmental review.

The study area, Teton County, and the surrounding ecosystem should be looked at comprehensively, with an eye toward the cumulative impacts of growth and development on the ability of wildlife to both utilize and move through the region. Geography and development have created a bottleneck for animals moving from Grand Teton National Park and the National Forest lands surrounding the Town of Jackson south to the South Park feedgrounds and the Hoback canyon. While one development might not hinder the movement of an entire mule deer herd, for example, taken together many of the proposed and existing developments most certainly will. It is also important to consider broader wildlife issues, such as the potential to remove or limit adjacent feedgrounds, which

could elevate the potential significance of other lands in the area in terms of elk crucial winter range.

Conclusions: A Perspective from the Conservation Alliance

Based on a review of the reports and studies listed in Appendices A and B, there are significant, quantifiable wildlife and scenic resources present in this region. Also, in addition to a number of site-specific data gaps, we note a lack of research on how intense development in District 12: South Park will impact not only local wildlife and scenic values, but also wildlife and rural character throughout the valley as a whole.

This report is a first step to emphasize the importance of making land use decisions with the best available information. South Park appears to be targeted for a significant increase in development without an adequate understanding of or appreciation for its wildlife and scenic values.

Because of the extent to which the new draft represents a rewrite, rather than an update of the 1994 Plan, the new draft has the potential to dramatically change future land use planning for the greater South Park region in particular. The new draft shifts away from the preservation of rural character, away from the importance of scenic preservation, and away from adequately recognizing wildlife resources in "interior districts," or nodes, in addition to outlying areas.

In general, the Conservation Alliance questions the approach to prioritize themes in individual, isolated land use planning districts. This type of approach could lend to planning and decision-making that underemphasizes the importance acknowledging and mitigating cumulative, valley-wide impacts. The community's new plan should include a more comprehensive framework to evaluate all land-use decisions within the context of wildlife protection.

Specific to South Park, the Conservation Alliance questions the low prioritization of "wildlife and natural resources" in District 12: South Park, and in general is very concerned with the devaluation of scenic resources in the new draft. The study area, like much of the public and private land in this valley, provides critical migration routes and yearlong and seasonal habitat for a wide variety of native species. Based on the information available, the maximum density proposed in the new draft and a low prioritization of wildlife and scenic resources in South Park are inappropriate and should not be promoted. To rank what is the community's overall top priority so low on the list for South Park is to do a disservice to the area, its residents (both human and wildlife alike) and to the community as a whole.

In conclusion, given the community's top priority to protect wildlife and the desire to prevent irreparable degradation to wildlife and scenic values, the new draft falls far short in its potential to uphold our community's vision. Prior to the adoption of land use plans that deem specific ranges of development as appropriate, the wildlife and scenic resources in the study area warrant both significantly higher consideration and further research. The low prioritization of wildlife and natural resource protection in

the South Park region appears to be unfounded and should not be promoted. Significant language from the 1994 Plan should be reinstated in the new draft to call out for recognizing the importance of this region for wildlife, scenic and agricultural values.

Overall, while some residential development is appropriate in the northwest corner of District 12, the new draft should not recommend significant intensification of development in the greater South Park region (or any district) given the community's goals to limit overall growth and protect wildlife. And, as development occurs, significant portions of adjacent lands, within South Park, should be permanently protected to balance development and conservation goals in the area.

Appendices:

Appendix A: Annotated Bibliography and Catalogue of Wildlife and Natural Resources in the greater South Park region
Appendix B: Maps, Images and Attachments
Appendix C: Inventory of species noted in studies/inventories/assessments
Appendix D: Excerpts from1994 Plan regarding South Park

Appendix A: Annotated Bibliography and Catalogue of Wildlife and Natural Resources in the greater South Park region

Enclosed in this Appendix is a summary of the readily accessible information available regarding the wildlife and scenic resources in and around the study area. Many of the studies were completed independently of one another, focusing on localized rather than cumulative impacts. It is important to view the reports as a collective unit in order to fully comprehend the value of the area to wildlife and as a scenic resource to the community.

Studies from properties both within and adjacent to the study area are summarized below, largely to ascertain the wildlife present in the study area itself, which contained some rather formidable data gaps. It is often relatively safe to assume that animals do not merely stop at roads and property lines, as is illustrated by both the Natural Resources Overlay (NRO) maps and the JHWF road kill data.

This Appendix is organized by report type, and alphabetically within each subheading. Direction to their location on the easement map (Appendix B, Attachment 1) as well as to other relevant attachments in Appendix B is included. The studies are summarized below with their most relevant points highlighted. Please see the full reports for additional details. As of April 2009, unless otherwise noted below, all of the following reports are available via the Teton County Planning and Building Department. Lastly, *this is a preliminary gathering of data and information regarding the study area; this is not a comprehensive study, analysis or collection of all relevant documents, but merely a starting point.*

Environmental Assessments

Biota Research and Consulting, Inc. Nov 2007. "Teton Meadows Ranch – EA," prepared for Sequoia Development. Jackson, Wyoming. (Attachment 1, #2)

This site consists of 288 acres located South of Town. It is surrounded on three sides by development, is within _ mile of 100 acres of conservation easements and is not in the NRO. (An EA was not required for the Teton Meadows Ranch project proposal, so this EA only covers the proposed development, not the impacts of potential future actions on the site in question). The site is primarily flat and historically agricultural. Flat Creek runs through the site, although it is managed as an irrigation ditch because the channel and banks are man-made. The Snake River, a class one nationally protected river, is located ~1 mile to the west and ~1.3 miles to the south of the site. Wilson Ditch and Susannah Slough also flow through the site. There are 13.6 acres of wetlands on the site, which are largely created by anthropogenic sources, along side irrigation ditches, and water (rain, flood irrigation etc) accumulating in man-made or naturally depressed areas.

The direct impacts on wildlife of development on this site would likely be minimal. Great Blue Herons would likely abandon the site. Raptors would lose a portion of their regional foraging area, neo-tropical birds would lose some low-quality habitat, and a host of amphibians would be displaced. Neither cutthroat spawning nor trumpeter swan habitat exists in the site.

The cumulative impacts on this site from development both on and near it would be more significant. Within _ mile there is non-crucial moose winter yearlong range and spring-summer-fall range for moose, elk and mule deer. There is a bald eagle nest 0.95 mile away, and peregrine falcons potentially use the site to forage. Elk used to migrate through the site but have ceased in recent years, and moose largely use the non-crucial winter/yearlong range on the site for migration purposes.

Biota Research and Consulting, Inc. June, 2002. "Environmental Analysis - Teton Science School – Jackson Campus, Teton County, Wyoming." Jackson, Wyoming. 30pp. (Attachment 1, #11, Attachments 18, 19)
This site consists of 219 acres (10 acres owned by Hansen and 209 – 5 lots – owned by Indian Springs Ranch LP), and is entirely within the NRO. It is located on the north side of Highway 22 between Town and Wilson, and is across the highway from the Indian Spring site. The school has been built.

All 219 acres are mule deer crucial winter range. There is evidence of elk movement across and through the site on the way to and from Indian Springs. There has also been some evidence of pronghorn activity on the site in the past. JHWF data show that there are also numerous collisions reported between vehicles and deer on the highway abutting this site, as deer try to cross Highway 22 into Indian Springs. Since mule deer can "tolerate and adapt to human presence" the EA predicted that the deer would not be likely to abandon the site altogether.

The value of this parcel lies in its isolation and its role in the continuous habitat provision to large ungulates in particular. The development, the Journeys School Campus of Teton Science Schools, was required, as a part of their permission to build, to limit outdoor lighting and evening activities, particularly in the times of year when big game species are most vulnerable.

Biota Research and Consulting, Inc. Nov 2002. "Environmental Analysis Addendum – TSS Jackson Campus." Jackson, Wyoming. 8pp. (Attachment 1, #11, Attachments 18, 19)
The site contains mule deer critical winter range, transitional winter range on the hillsides, crucial elk winter range, for a few elk, and transitional for many elk as they migrate to South Park, the South Park feed grounds or the National Elk Refuge.

Carter-Burgess, Wyoming Department of Transportation, United States Department of Transportation and Federal Highway Administration. 1996 "Melody Ranch Extraction Site – EA." Jackson, Wyoming. 55pp. (Attachment 1, #5, Attachments 2, 4, 6)
This site is located North of Flat Creek and West of Hwy 89, south of Town and directly north of the Game and Fish Wildlife Management Area. As such, it serves as an elk migration corridor. In addition, big horn sheep and the Sublette mule deer herd uses the area as spring-summer-fall habitat. White tailed deer, peregrine falcons, whooping cranes and pronghorn antelope have also been observed on the site. Trumpeter swans use the site

year round, and winter in nearby Flat Creek. The site is near moose winter and winter/yearlong range.

Development of this site, according to the report, constituted a substantial loss of winter range, when taking into account the cumulative impacts of development in the larger South Park region. The site is within a migration route for elk moving to the feed ground, increasing risk to the elk as they try to jump fences or cross the highway to access feed, thereby increasing elk winter mortality. With the development of the pit, some concerns were mitigated by enforced dates of operations, dates for yearly fence installments and removal, and clean up efforts. The project is also required to re-habilitate the site when operations are completed.

Headwaters Ecology, June 2002. "Four-Lazy-F Ranch – EA," prepared for Michael Brownfield and Teton County Planning and Development Department. Jackson, Wyoming. 42pp. In: "3 Creek Ranch Final Development Plan Submittal," Verdone Landscape Architects, Inc. Jackson, Wyoming. March 2003. (Attachment 1, #7, Attachments 2, 14, 23)

This site is about 710-acres, consisting of valley floor, riparian areas and one butte. Spring Creek flows permanently though the site, a number of other springs originate there, and some irrigation ditches that are fed by Flat, Cody and Spring Creeks flow throughout the site. Cody Creek and Crane Creek also flow through the site, and the Snake River is right outside of the boundary to the west. The western 2/3 of the site should be protected for trumpeter swans and cutthroat trout, in particular. Portions of the site are within the NRO and SRO districts. The entire property is fenced, and there are some internal fences as well. There is evidence of both livestock and wild animals at the site, which can be seen by a "browsing line" in the Cottonwoods, at about elk/cow head height, scat, tracks, bald eagle sightings (they nest nearby), river otters tracks in the winter (but no den), trumpeter swans, coyote tracks in the winter, and red tail hawks (who likely nest on the property).

The prime ecological significance of the site is its role as a connector between the Snake River and Flat Creek corridors. Additionally, there is moose, elk, bald eagle, trumpeter swan and cutthroat trout habitat.

Certain enhancement opportunities exist at the site, as suggested within the report by Game and Fish representatives, including fence removal, pet control, building setbacks and native-plant landscaping. In addition, this EA recommends that a N-S passage be maintained, as well as an E-W passage from Flat Creek to the Snake River, which extends beyond the property line of the site.

Porter Estates Trust Lands (Attachment 1, #1, Attachments 2, 3, 4, 6, 12, 13, 20, 23)

The Porter Estate consists of about 822 acres in the northern segment of South Park, at the junction of High School Road and South Park Loop Road. It is within the SRO district. There were numerous reports concerning the Porter Estate and proposed development therein. Several are listed below:

"1989 Publication for Workshop" (Town of Jackson workshop). Available at the JHCA office.
A scenic corridor and ranch-feel is important to maintain, so the idea is to cluster houses along South Park Loop Road and in the Northern portion of the site

Civitas. "Environmental Analysis," prepared for the Town of Jackson, Wyoming. 20pp. In: Porter Trust Lands Draft Master Plan. July, 2001.
This site contains no critical habitat for federally listed species, is not within the NRO and contains no crucial habitat for species of special concern. It is highly impacted, by agricultural and ranching uses in the past. Even so, moose use the site year-round. Ninety percent of the site is flood irrigated, resulting in "wet meadows," which are used by birds (a number of which are deemed "sensitive"), amphibians and reptiles. There is generally poor aquatic habitat in this site, and overall, ~92% of the site is ranked low for big game habitat. There is a bald eagle nest less than 2 miles away, and the report acknowledges the need for an east-west movement corridor to be maintained.

According to the JHWF data, road kill in this area is not localized, and has no pattern or hotspots. Elk, moose and deer are present, according to the road kill data, which shows "frequent but random ungulate crossings" of Highway 89 near to the site. Bald eagles nest nearby, and could be adversely impacted by development on the site. There is no crucial habitat for any species, although some birds as well as reptiles, amphibians and plants would likely be impacted. Numerous other animals may exist on the property, but the report is inconclusive.

Civitas, July, 2001. A public presentation: "Porter trust Master Plan." Jackson, Wyoming. Available at the JHCA office.
This was a presentation regarding annexation, which promised to protect "environmental corridors," including an east-west connector. The presentation stated that 92% of the habitat present on the site is of low value for big game.

University of Wyoming, 2001. "Potential Biological Values of the Jackson Annexation Area." Available in the JHCA office.
A variety of songbirds, mammals, waterfowl, amphibians and fish are present, particularly in the riparian areas (both natural and manmade) in and around the site.

Baseline Inventories/Scenic and Ecological Inventories
Biota Research and Consulting, Inc. Nov, 1989 revised July 1992. "Ecological and Scenic Inventory of the 760-acre Indian Springs ranch, Jackson Hole, Wyoming," prepared for The Meridian Group, Jackson, Wyoming. 23pp. In: Conservation Easement. (Attachment 1, #10)
This site is located west of Jackson along Highway 22. The irregularly shaped parcel is also accessible from South Park Loop Road. It contains agricultural lands, open space, and some development. Spring Creek and Indian Springs Creek flow through the site, as well as irrigation ditches and some seasonally flood-irrigated areas. Moose, deer and elk historically have used the site year-round to a degree, most heavily in the winter, particularly on the slopes of the buttes. Deer migrate through the site frequently. The site

contains critical winter range for Trumpeter swans; over half of the wintering swans south of Yellowstone use the Snake River area along South Park, of which this site is a part. There used to be good spawning ground for cutthroat, but as of the time of this report, much of it had been degraded.

Overall, 43 mammal species, one reptile species, 3 amphibian species, a few fish species, and 138 species of birds have been recorded using the site. The diversity of cover types makes the site extremely valuable to many of these species.

Visually, this site has high scenic value as well. It provides views of agricultural and ranchlands, as well as the buttes and the mountains. It provides part of the view from Highways 22 and 89, and lends to the rural and agricultural character for residents and visitors alike near the gateway to Town. Situated near the Snake River, it also offers views and connectivity between the River and surrounding habitats.

Biota Research and Consulting, Inc. Nov 1997. "Ecological Baseline Inventory for the 42-acre Parker Property, Teton County, Wyoming," prepared for Jackson Hole Land Trust, Jackson, Wyoming. 20pp. In: Conservation Easement. (Attachment 1, #6)

This site is located directly to the west and south of South Park Loop Road, on Hufsmith Hill, and is near several large conservation easements. Currently, it is used for agriculture, habitat, a migration corridor and recreation. Elk migrate to and from crucial winter range via this site, and it is also non-crucial winter/year-long range for moose. Red tailed hawks, kestrels and owls all likely use the site for foraging, and mule deer and trumpeter swans utilize adjacent lands.

Jackson Hole Land Trust, July 2006. "Natural Resources Inventory for the 28-acre Dairy Subdivision (Healey Property)." Jackson, Wyoming. 13pp. In: Conservation Easement. (Attachment 1, #8)

This is one of 30 lots in the Dairy subdivision, off of South Park Loop Road, and is 1500 ft from the NRO. As such, it "plays an important role within the surrounding cluster of protected properties." It is winter/year-long moose habitat, and spring, summer, fall habitat for elk and mule deer. Canada geese use the site frequently, and raptors use it to forage, given the relatively abundant water features.

The site's creeks and ditches run largely north south, and feed into Spring Creek and then the Snake River, The health of the wetlands and riparian and aquatic areas on the site influence the ecosystem health downstream. According to the report, "this area is under significant development pressure, but remains part of the larger Snake River Riparian Corridor, which is considered a critical ecological feature in the southern half of the Greater Yellowstone Ecosystem."

The site also has very high scenic value, as seem from Boyle's Hill Road, Highway 22 near Town, Highway 89 and South Park Loop Road. It accentuates the scenic values of the surrounding easements and open lands as well.

Jackson Hole Land Trust, Dec 2005. "Natural Resources Inventory for the 18-acre Kirk Property." Jackson, Wyoming. 12pp. In: Conservation Easement. (Attachment 1, #9)
This is one of 30 lots in the Dairy subdivision, off of South Park Loop Road. A little less than half of the site is within the SRO. Within a 1.5-mile radius, there are 2,500 acres of protected land (largely JHLT easements). It is winter/year-long moose habitat, and spring, summer, fall habitat for mule deer and elk. Hawks and other raptors use the agricultural meadows for foraging, and amphibians likely use the seasonally flooded (man-made) wetlands as well as the Spring Creek riparian area. The health of these riparian areas has impacts downstream, in the larger Snake River ecosystem.

Spring Creek has values both on and off site for swans, bald eagles, raptors and other birds, and for spawning cutthroat trout; the connectivity between Snake River and tributaries is critically important to maintain.

The site contributes to the overall scenic and rural character of the region.

Jackson Hole Land Trust, March 1998. "Natural Resources Inventory for the 40-acre Oliver Property." Jackson, Wyoming. 20pp. In: Conservation Easement. (Attachment 1, #13)
This site is located on High School/Antelope Butte, is near Indian Trials and Indian Springs, is a part of the Poodle Ranch, and adjacent or near many other protected and unprotected/undeveloped lands; this connectivity adds to their cumulative value. It serves as a buffer between the Poodle Ranch grazing area and Town and its intense human uses. It is within the SRO, and 80% of the site is within the NRO as well. Eighty percent of the site is also critical winter/year-long mile deer range. Elk use the site to migrate to and from the South Park feedground, and it is non-crucial winter/year-long moose range. Bald eagles nest nearby.

The main ecological significance of this site is its foraging potential and its function as a habitat connector, due in large part to its diversity of cover-types. In addition, buttes generally are important and threatened features for a variety of wildlife species.

This butte is a prominent skyline, highly visible from highway 89 and most roads in Town. It serves as a connector to the Teton vistas; a butte-to-mountain view.

Jackson Hole Land Trust, March 2006. "Natural Resources Inventory for the 241-acre Poodle Ranch." Jackson, Wyoming. 14pp. In: Conservation Easement. (Attachment 1, #12)
This site consists of 241.36 acres, in three individual parcels, located off of Highway 22 headed west from Town. The entire site is within the SRO, and about 14-acres are within the NRO. It is currently used agriculturally, and for horse pasturing, with agricultural meadows, riparian areas, aspen and old growth conifer stands, and juniper shrub-land.

Two-thirds of the site is crucial winter/year-long mule deer habitat, and one third is spring, summer, fall mule deer habitat. Winter/year-long moose habitat covers the entire

site, as moose travel to and from crucial winter range along the Snake River and in the Cache Creek drainage. The diversity of land cover-types on the site also accentuates its value to moose and many other species. There is evidence of elk moving across the site, largely via West Gros Ventre Butte, from as far south as the Ford property or the South Park Feed ground to as far north as GTNP.

Bald eagles nest nearby, and rely on cottonwoods for perching, agricultural fields for foraging, and the health of the surrounding ecosystem for continued food sources. Trumpeter swans use the site extensively in the winter, as there are a few streams that remain ice-free even in the coldest months. Both local and migratory swans, from as far away as Canada, rely on this site both as home habitat and as a connection between other wintering sites in the region. The wetlands on the site also provided important habitat for beavers, ducks, river otters, great blue herons, fish and a variety of waterfowl. Mountain lions and coyotes, red fox, hawks and owls, may use the site for hunting. At least 60 species of birds use the site. About 10 deer are killed on Highways 22 and 89 each year adjacent to Poodle Ranch as they are attempting to move to and from habitats both on and near the site.

It has scenic value, as it is part of the gateway from the west to the Town, serves as a major habitat provider and habitat connecter for numerous species, and helps protect the ecological integrity of the entire ecosystem.

Jackson Hole Land Trust, June 2007. "Natural Resources Inventory for the 136.49-acre Poodle Ranch." Jackson, Wyoming. 10pp. In: Conservation Easement. (Attachment 1, #12)

The site is located to the west of Highway 22 heading west. It is included in a collection of contiguous conservation easements totaling nearly 1,200 acres, and is within the NRO and the SRO. The portion of Spring Creek on the site is used for Cutthroat spawning and, since it remains ice-free in the winter, is important to trumpeter swans as well. Wetlands, fed in part by flood-irrigation, are an important habitat type as well. There is aspen coverage, conifers, shrubs and agricultural meadow, representing a valuable variety of cover-types.

Two-thirds of the site is crucial winter/year-long mule deer habitat, and one third is spring, summer, fall mule deer habitat. Winter/year-long moose habitat covers the entire site, as moose travel to and from crucial winter range along the Snake River and in the Cache Creek drainage. The diversity of land cover-types on the site also accentuates its value to moose and many other species. There is evidence of elk moving across the site, largely via West Gros Ventre Butte, from as far south as the Ford property or the South Park Feed ground to as far north as GTNP.

The site is part of a continuous swath of open space that provides continuity between the Town of Jackson and Teton Pass to the west. The site "serves to maintain wildlife habitat and the ecological connectivity between core areas of public land habitat to private lands." The scenic value is also well documented and recognized, and the site is viewed by millions of residents and visitors yearly.

Jackson Hole Land Trust, April 2007. "Natural Resources Inventory for the 14-acre Valley Springs Ranch (Wilson Property)." Jackson, Wyoming. 5pp. In: Conservation Easement. (Attachment 1, #3)
This site is located within South Park, about 1 mile south of the highway 89-High School Road junction. It is winter/year-long moose habitat, and spring, summer, fall elk habitat. Trumpeter swans, amphibians and other waterfowl (many of them "sensitive" species) use the site year-round, and particularly in the winter, due to the "thermally affected springs," which means that the water is ice-free. Birds and amphibians also rely on the irrigated fields for habitat, and the site provides habitat connectivity for big game species.

Highway 89 at the Valley Spring Ranch is one of several wildlife-vehicle collision hotspots, demonstrating the existence of elk, moose and deer at the site. It directly abuts the Wyoming Wetlands Society site, which is a trumpeter swan "preserve and captive breeding area;" the value of each of the sites is increased due to its proximity to the other.

The scenic value of the site lies in its open space, hay meadows, agricultural fields, and high level of visibility from Highway 89 at the southern gateway to Town.

Jackson Hole Land Trust, May 2002. "Natural Resources Inventory for the 10-acre Wyoming Wetlands Society Property." Jackson, Wyoming. 11pp. In: Conservation Easement. (Attachment 1, #4)
Adjacent to the Valley Spring Ranch along Highway 89 in South Park, this site is home to the Trumpeter Swan breeding grounds and preserve. It is within the SRO and surrounded by other rural lands; within a 3-mile radius, there are 1,470 acres of protected land. This site is useful for habitat connectivity, particularly as some of the surrounding lands are developable. Mule deer use the site for migration, and it is moose winter range. The undeveloped meadows and ponds (both natural and man-made) serve as important habitat for waterfowl, small mammals and amphibians, including trumpeter swans, mallards, Barrow's, goldeneyes, Canada geese, gadwall ducks, great blue herons, raptors, songbirds, skunks, voles, shrews, and coyotes.

This site is part of the scenic corridor along Highway 89, and is important in terms of the larger context of the area, and the nearby future development potential. It is also highly visible in the gateway from the south to visitors and residents and therefore adds to the scenic value of the South Park area.

Wachob, Doug, Teton Science Schools Conservation Research Center, Jan 2007. "Natural Resources Inventory for the 3.5-acre Lot 60 Indian Springs Ranch Property Teton Science Schools." Jackson, Wyoming. 8pp. In: Conservation Easement. (Attachment 1, #14)
The site is located off of Highway 22 heading west from Town. It is within the SRO, adjacent to the NRO, and adjacent to the 636-acre TSS and the 36-acre DeBixedon conservation easements. Cody Creek runs through the site. Wildlife generally moves through the property nocturnally and for seasonal migrations. Elk utilize the site during the rut, and to move between summer and winter ranges. Mule deer utilize a wide swath of the adjacent lands to migrate to "ecologically linked" crucial winter/year-long habitats,

and to the site itself, which is spring, summer, fall mule deer habitat. Moose have also been known to use the site. Waterfowl, amphibians, cutthroat trout and large ungulates (elk in particular) use the Cody Creek riparian area as well.

Raptors forage on and near the property. The riparian areas and agricultural meadows on and near the property provide foraging opportunities for red fox, coyotes, and badgers as well as raptors. A variety of birds, amphibians and small mammals also rely on this and adjacent sites.

The site is highly visible from Highway 22 between Town and the Teton Village Road, and is a scenic asset to the community.

Reports/Studies

Biota Research and Consulting, Inc. Sept 2003. "Final Report, Jackson Hole Roadway and Wildlife Crossing Study, Teton County, Wyoming," prepared for the Jackson Hole Wildlife Foundation. © 2003. 50pp. (Attachments 5-13)

Roadways have cumulative impacts in the long-term, including wildlife-vehicle collisions (WVCs), reduced habitat connectivity and habitat loss. These impacts are exacerbated when cars are moving very quickly, on straightened, widened roads. More traffic results in more WVCs, which is dangerous for both humans and animals. Just as people need to use roads, many large animals need to cross roads to meet their "daily, seasonal and life needs." Between 1990 and 2001, there were an average of 194 ungulate fatalities each year. But, because about 50% of WVCs are likely not reported due to a variety of reasons, (the animal was able to leave the roadway before dying, the accident was not reported, the accident occurred on a secondary road and was therefore not included in the study or the accident occurred in the summer season, when less data is collected), the actual numbers are likely much higher.

Hotspots for WVCs are sprinkled all over Teton County. Relevant (to this study) major hotspots occur at the intersection of South Park Loop Road and Highway 89 at Melody Ranch, Highway 89 near Rafter J, both to the west and the south of the "Y" intersection, and roughly between Spring Gulch Road and Skyline Ranch on Highway 22. In addition, the highest collision rate per square mile in the study area is between Spring Gulch Road and Skyline Ranch on Highway 22. Movement corridors were also examined in this report by the JHWF. No high quality ungulate movement corridors exist in the study area.

Roads have a variety of impacts on wildlife habitat, and when taken together, multiple roads have an exponentially increased impact. Road bisect wildlife habitat, interrupt movements, change wildlife behaviors, make some animals avoid habitat adjacent to roads, increase mortality (collisions, illegal hunting, management activities due to human-animal interactions). Wider, straighter roads decrease the crossing success rate.

Lastly, it is important to note that Highway 22 has the "highest rate of wildlife-vehicle collisions of any road in Wyoming."

Biota Research and Consulting, Inc. July 1991. "Recommendations for Wildlife and Habitat Protection, Teton County, Wyoming," prepared for Teton County Board of County Commissioners, Jackson, Wyoming. 16pp.
This report outlines the importance of the Snake River floodplain and surrounding riparian areas to bald eagles, for both nesting and non-breeding uses. Setbacks are necessary between water features and wetlands and buildings and other human uses, because "bald eagles are particularly intolerant of human disturbances. Although capable of withstanding some interference and disruption, certain levels of human activity will result in behavioral changes and lowering of reproductive success." It is critical to protect migration corridors, even through developments in the Snake River ecosystem.

Bio/West Inc. March 1983. "Wildlife Values of South Park – Can They Be Preserved?" Logan, Utah. 19pp. (Attachments 1, 2, 3, 4, 23)
This was a study to determine the wildlife values present in South Park as development pressures mount. The findings show that "virtually all of South Park is important to wildlife." If development pressures in South Park were removed, the riparian areas (including canals, meanders, oxbows, and wetlands) will be able to return to their natural state. In the case of development, north-south connectivity is critical to the successful movement of ungulates and other species within the region and the greater ecosystem.

Hocker, Jean and Clark, Story, A Jackson Hole Project, with the Izaak Walton League of America, 1981. "Jackson Hole: Protecting Public Values on Private Lands." 80pp. Available at the JHCA office. (Attachment 20)
This report discusses the potential of private lands to be excellent providers of habitat for a variety of species. It emphasizes the importance of flood plains, wetlands and riparian areas.

Jackson Hole Wildlife Foundation, "Give Wildlife a Brake." Jackson, Wyoming. Accessed via www.jhwildlife.org, May 2009. (Attachments 5-13)
As of May 2009, the JHWF website has documented 15 total roadkills in Teton County for this year. An elk was killed on Highway 22 near the Teton Science Schools Journeys School campus, and several mule deer were killed on Highway 89 near Rafter J. From 2004 to 2007, an average of 230 animals were killed yearly.

Updated roadkill hotspots extend from Spring Gulch Road to the Moose-Wilson Road along Highway 22, and from the "Y" to Rafter J along Highway 89.

N.E.S Inc. August 1989. "South Park Master Plan Study." Jackson, Wyoming. 47pp. (Attachments 1, 2, 23, 24)
The primary point of this plan was that South Park is the most appropriate place to develop, given the constraints on all other directions out of town (GTNP, NER, BTNF etc), but that it is important to still maintain an attractive approach to town along Hwy 89, including some open space. The plan also proposes some mixed-use, but primarily residential development. It asserts that many of the valley's most critical wildlife areas are outside of the study area of South Park, and that development should occur in South

Park in order to alleviate development pressures in other, more critical, areas in the County

P.H Consulting, Inc. May 1988. "Wildlife Habitat and Migration Route Inventory for Teton County, Wyoming." Providence, Utah. 13pp. (Attachments 5-13)
The crux of this report was the assertion that "certain of the wildlife habitat found on private lands is so essential that the value and importance of the adjacent federal lands can be substantially diminished if it is lost or impaired." The report also stressed the need for region-wide access roads to run north to south to allow for wildlife passage, for setbacks from streams, riparian areas, and wetlands, for wildlife-friendly bridges instead of culverts, and for general habitat buffers.

Pilliod, D.D. and E. Wind (editors). 2008. Habitat Management Guidelines for Amphibians and Reptiles of the Northwestern United States and Western Canada. Partners in Amphibian and Reptile Conservation, Technical Publication HMG-4, Birmingham, Alabama. 139pp.
This is a guidebook for landowners and planners on the maintenance of successful amphibian and reptile habitats and specific management strategies. It recommends maintaining existing habitat, and being sure that it is healthy. Healthy riparian areas have the potential for impacting ecosystems downstream, and are best able to provide for the variety of plant and animal species that exist therein. Habitat lost often cannot be replaced elsewhere, due to the limited migratory range of many amphibians and reptiles. It is also important to maintain a buffer between impacted lands, such as buildings or agricultural fields, and riparian areas, in order to ensure their health; in many cases, this buffer is as important as the habitat itself. Wetlands and other buffers filter out toxins from things such as runoff from pavement, chemicals and other toxins.

Remlinger, Brian. Intermountain Aquatics. "Flat Creek Watershed Management Plan," Teton County, Wyoming. Nov 2006. Available via: www.tetonconservation.org. 44pp. (Attachment 21)
This report deals with the health of the Flat Creek watershed, running from roughly Jackson Peak south to the Snake River confluence, south of Town. It runs through the Town of Jackson, and through South Park. Both humans and wildlife rely on the Flat Creek watershed for drinking water, aquifer replenishment, habitat, recreation, spawning, fisheries and scenic vistas. Most of the Town is within the watershed.

Non-point source pollution is the main threat to habitat health and water quality in the Flat Creek watershed, particularly in the segment between Cache Creek and the Snake River. As of 2006, the Creek had high levels of Total Suspended Solids and high Turbidity ("cloudiness" of the water), limiting its ability to meet the needs of the human and animal populations relying upon it. Runoff from impervious surfaces (paved areas) from both rainfall and snowmelt often carries particulates as well as chemicals and toxins into the river system. Other threats include erosion of bare, disturbed lands, altered or degraded riparian and fish habitat, and adjacent undeveloped but developable lands and their future potential impacts.

This report calls for setbacks from the creek and associated riparian areas, enhancement of existing habitat to meet the state's designated use under the Clean Water Act, and development that is mindful of the valuable resource that is Flat Creek.

Smith, Roger. March 2003. "Avian Monitoring on the 3 Creek Ranch: Bald Eagles and Trumpeter Swans." Jackson, Wyoming. 9pp. In: Three Creek Ranch Final Development Plan Submittal, Verdone Landscape Architects, Inc. March 2003. (Attachment 1, #7)
Through fairly extensive monitoring, researchers saw a few bald eagles and several more trumpeter swans on the site. Two known bald eagles nests are nearby. There was a reminder in the report that development within the NRO (portions of the site are within the NRO) has to be very ecologically conscious, and comply with natural resource protection regulations and specific development standards.

Wells, Michael C. PhD Biologist, April 1979. "Wildlife in Jackson Hole – Private Lands as Critical Habitat." Wilson Wyoming. 27pp. (Attachments 1, 3, 4, 15)
The Snake River corridor is incredibly important to a wide variety of animals/plants. The riparian areas in South Park are included in this, and are crucially important themselves. The upland grass/deciduous habitat along Highway 89 is also critical habitat for a variety of species.

Agency Reports
Wyoming Game and Fish Department, April, 2009, "2008 Habitat Report Strategic Habitat Plan Accomplishments – Aquatic Habitat, Terrestrial Habitat, Habitat Access Maintenance, Lands Administration Sections." Jackson Region, 10pp. (Attachments 3, 4)
The report covers the existing conditions of habitats, wildlife data and the enhancement activities that have taken place during the year 2008. In and near the study area, the Spring Creek Channel Enhancement Project was outlined. This is a partnership between agencies and conservation groups to rehabilitate stream channels that have been degraded by changing land use in the area (flood control, widening and slowing of flows etc) in an effort to enhance the habitat for Snake River cutthroat that are a part of the Snake River fishery. Essentially the focus of this report was data collection and enhancement opportunities in the Jackson region.

Wyoming Game and Fish Department, Jan 2009, "Strategic Habitat Plan" including maps 22pp. (Attachments 3, 4)
The Strategic Habitat Plan is a document outlining the goals and strategies for meeting the challenges to habitats and wildlife posed by a changing ecosystem. In particular, it presents some new management needs/strategies that deal with imminent climate change. Two top priorities are identified (protecting crucial areas and rehabilitating enhancement areas), as well as 3 additional goals. Strategies to meet these goals are also presented.

A section of this report correlates to attachments 5 and 6. Crucial habitats, as defined by this report, "have the highest biological values, which should be protected and manages to maintain healthy, viable populations of terrestrial and aquatic wildlife." As shown in

attachment 6 (crucial areas), the study area, particularly flanking Highway 22, consists of some areas of crucial habitats. Specific strategies for achieving this goal of conserving crucial areas are to collect more data, and to protect large areas of land, including big game movement corridors.

In addition, attachment 5 (enhancement areas), shows that much of the land within the study area is slated for enhancement. Enhancement areas are defined by the existence of "habitat issues" (ranging from loss of aspen stands to loss of fish passage) and the feasibility of remediation activities. The specific strategies outlined for the goal of enhancement include collecting and analyzing data pertaining to existing habitats.

Excerpts

18 P Capital Development Application (Attachment 1, #18, Attachments 16, 17)

Headwaters Ecological Services, Inc. Feb 21, 2007. Letter from Robert M Sgroi, Ecologist, to Amy Kuszak, Teton County Planning and Building Department, regarding the impacts of the 18 P development.

This site is located south of Town, and directly north of the South Park Service Center. It is surrounded on three sides by dense industrial development, and its fourth side borders Bridger-Teton National Forest land. The entire site is within the NRO, and outside of the SRO. It is considered crucial winter range for mule deer. It does not serve as a movement corridor nor does it receive much use due to the fact that impacted, paved development sites surround it. Headwaters, in this correspondence, recommended that it be removed from the NRO.

Teton County Planning and Building Department, March 18, 2009. Letter from Amy Kuszak to Mike Rowell and Rob Sgroi, Headwaters Ecological Services, Inc, regarding the exemption from a natural resources review for the 18 P development.

This project was exempted from an environmental assessment/review because, per the LDRs, there is "well-documented habitat information and [it is established that] additional development of the property is anticipated to have minimal additional negative impacts to species protected by Article III." Because the site is surrounded by dense development, it qualifies for exemption.

Rendezvous Engineering, P.C., 2005, Valley View Business Park Final Development Plan. (Attachment 1, #17, Attachments 16, 17)

Headwaters Ecology, Inc., June 21, 2005. Letter from Michael Rowell to Amy Shea, Teton County Planning and Building Department, regarding the Valley View subdivision (lots 13 and 14), the preliminary environmental analysis, and exemption from environmental review.

The entire site is within the NRO and is crucial winter range for mule deer. The eastern edge of one of the sites borders Bridger-Teton National Forest land. Many of the surrounding lots are already developed. Deer have been seen using adjacent slopes, but not the site itself. The site is not a movement corridor, and has no quality foraging due to past development and surrounding intense commercial use and is partially enclosed by fencing.

Wyoming Game and Fish Department, April 16, 1999. Letter from Joseph Bohne, Jackson-Pinedale Regional Wildlife Coordinator, to Joe Infanger, H&I Development, LLC, regarding wildlife values on lot 5 of the Valley View Subdivision.
The site is within the NRO and within crucial winter range for mule deer. Deer use the subdivision rarely, during particularly severe winter conditions. Otherwise, the site and surrounding sites have been so degraded as to not be able to serve as wildlife habitat.

Correspondences
Biota Research and Consulting, Inc. Oct 11, 1993. Letter from Tom Campbell, President, to Bob McLaurin, Town Administrator for the Town of Jackson, Wyoming, regarding the Comprehensive Plan process and the NRO. (Attachment 2)
The "scoping phase" of the 1994 Jackson/Teton County Comprehensive Plan determined that the public wants to protect wildlife. In order to achieve this goal we must protect crucial as well as non-crucial areas because wildlife need habitat year-round. We need to be conscious of land areas both in and around the habitats we are trying to protect.

Biota Research and Consulting, Inc. Jan 21, 2009. Memo from Hamilton Smith to Brendan Schulte, Pierson Land Works, Inc, regarding the Everok Parcel of the Valley View Subdivision and an environmental assessment exemption. In: Development Plan Application, Brendan Schulte on behalf of Everok LLC. (Attachment 1, #17, Attachments 16, 17)
This site is located about 6 miles south of Town, to the east of highway 89. It is within the NRO and crucial winter range for mule deer. Areas east of the site provide foraging and movement opportunities for wintering mule deer. Gary Fralick, South District Wildlife Biologist for Wyoming Game and Fish Department outlines one boundary for crucial winter range for mule deer in 2008, which does not include this site. The WGFD 2006 data draws a different boundary, which does include this site.

Teton Meadows Ranch (Attachment 1, #2)
Creel, Margaret E. and Smith, Roger N, Feb 19, 2008. Letter to members of the Teton County Planning Commission, regarding the Teton Meadows Ranch proposed development, the potential impacts on wildlife, the implications of the decision during the Comprehensive Plan update process, and inconsistencies between the Biota Environmental Assessment and their own observations as residents an biologists.
This letter, from South Park residents Creel and Smith, outlines reasons why they are opposed to the Teton Meadows Ranch development, and why the results of the Environmental Assessment (completed by Biota Research and Consulting) were unclear and unfounded. They cited their own evidence of red fox, coyote, moose, rodents, Canada geese, bald eagles, American kestrels, red-tailed hawks, Swainson's hawks, rough-legged hawks, peregrine falcons and various aquatic species using the site or adjacent lands. Year after year, many mammals and birds use the area for foraging and as a movement corridor.

Issues that were raised about the Biota EA include: a) Statements that indicate "probable" use of the area by species when in fact those species have and continue to consistently use the area; b) the allegation that there were no raptor nesting sites on the property when

in fact there are; c) the EA was completed in September and October, and states that moose do not use the site, when in fact they do use the site in different times of the year; d) the site can be rehabilitated and will therefore increase in value to a variety of species; e) there is acknowledgement from Wyoming Game and Fish Department that the lack of elk as stated in the EA is wrong, that elk do use the site currently; f) the approach of studying the site in isolation from the surrounding areas is flawed and does not result in an accurate representation of the values on the property.

The letter also advocated studying the impacts of development on resident wildlife populations prior to approving a large-scale development proposal, and waiting until the end of the Comprehensive Plan update (and listening to the resounding public comment) before making a decision on this development in particular. Creel and Smith mentioned traffic and impacts on the local roads, the importance of the SRO and threats to it, and the destruction of habitat types without a clear plan to mitigate for that loss, and concluded with a statement of the rural, agricultural and scenic character of South Park and the need to protect it.

Teton Conservation District, Sept 28, 2007. Letter from Rachel Marko, Natural Resources Specialist, to Blair Leist, Teton County Planning and Development, regarding migration patterns in South Park.
This area is one of the last places in this general region used for seasonal migration. As such, it must be protected.

Teton Raptor Center, March 10, 2008. Letter from Roger Smith, Director, to Amy Kuszak, Blair Leist, Teton County Planning and Development, regarding the impacts of development of the Teton Meadows project on area raptor populations.
This was a piece submitted by Smith to Kuszak and Lesit regarding mitigation possibilities for the impacts of the Teton Meadows Ranch development proposal. Smith found that no on-site mitigation would be feasible within the proposed development, and that off-site mitigation would be questionable. The large areas of open space where the development was proposed serve, year after year, as a food source for various mammals and birds. Not only do the raptors use the trees in the areas (particularly the cottonwoods), but they also consistently rely upon the rodent population in the agricultural open space for food.

In addition, Smith cites the differences between the types of wildlife that flourish in developed versus undeveloped areas. “Human adapted species” are more successful in disturbed/developed habitats than “human sensitive species”, and in this case many of the native and existing species would not be able to remain in the South Park area once it is developed. Development of this sort reduces the value of the land as habitat provision by facilitating “a transition to human adapted and/or non-natives, staggeringly high mortality rates and … low nesting success,” as well as a loss of ecologically important species in the area.

Development on this site would represent a loss of “ecologically functional open space” in Jackson, which is rare to begin with. Smith says, “…we simply need to recognize that

a development at this density has irreversible impacts that are cumulative in nature on wildlife, including birds of prey." Lastly, he suggests focusing on all wildlife instead of only the charismatic mega-fauna, and focusing on preserving and protecting the dwindling open space available in the Southern portion of the valley, because, while private lands are critical, "these valley lands may be ecologically under their potential but are inherently more productive then many adjacent parklands."

United States Forest Service, United States Department of Agriculture, March 7, 2008. Letter from Dale Deiter, Jackson Ranger District, to Blair Leist, Teton County Planning and Development, regarding impacts of growth and development on federal lands.
The number of people living in South Park will have an impact on the surrounding National Forest lands. Developments that target locals (non-vacationers, workforce) will increase the impacts on National Forest land and the surrounding areas by adding a significant number of people. Snow King would see more people, as would Wilson Canyon and Game Creek (which are managed with big game in mind). Deiter says that "recreation and other human activities are to be managed to meet the needs of big game species," not the other way around.

The Wilson Canyon trail is closed and the Game Creek trail has dog leash requirements in the winter because of deer, elk and other wildlife using the area.

Wyoming Game and Fish Department, Dec 17, 2007. Letter from Scott Smith, Wildlife Management Coordinator, to Blair Leist, Teton County Planning and Development, regarding impacts of development on wildlife.
This is winter/yearlong range for the Sublette Moose herd, and the site is within a big game migration corridor. Mule deer and elk use is minimal, largely because the surrounding land is already used for housing/is already developed.

Teton Science Schools – Journeys School Jackson Campus application (Attachment 1, #11, Attachments 18, 19)
Jackson Hole Conservation Alliance, Aug 20, 2002. Staff Report/Board Memo from Margie Lynch, Community Planning Director, regarding Teton Science Schools Journeys School Campus proposal.
Lynch pointed out in this memo that "WYDOT additionally reports that WY 22 from Albertson's to the Teton Village Road has the highest reported wildlife collision rate in the entire state," a situation that could be exacerbated by more traffic on that stretch of road as well as by more development in the area.

Teton County EA Review Staff, July 18. 2002. Memo to Paul Anthony, Teton County Planning and Development Project Director, from Tiffany Campbell, regarding Science School Environmental Assessment Review.
The 219-acres of the site lies entirely within the NRO. It is valuable mule deer habitat, particularly on the eastern and western slopes of the site, and on Vogel's Hill. It is also considered to be critical elk winter range. Raptors, small mammals, passerines and the occasional moose also use the site.

The slopes are the most valuable portions of the site to wildlife. Having humans there will have impacts on the animals, particularly the elk and deer. Historically, large numbers of elk and mule deer have used the site, both for habitat and migration. JHWF data suggests that numerous elk and deer move across the road (Highway 22) at this location, particularly in the fall and winter months.

Mitigation measures were required, including limiting nighttime activity (particularly in critical times of year), limiting outdoor lighting, limiting road trips and traffic on the driveway, and on-site wildlife monitoring.

Wyoming Game and Fish Department, Sept 9, 1993. Letter from Bob Oakleaf, Non-game Coordinator, to Tom Campbell, President, Biota Research and Consulting, Inc. regarding bald eagle protection in the NRO. (Attachment 2, 14)
It is necessary to maintain a 400-meter buffer around bald eagle nests and a larger transition zone as well. As it stands (in 1993), the NRO will not help bald eagles.

Wyoming Game and Fish Department. Nov 7, 1978. Letter from Garvice Roby, Wildlife Biologist to Teton County Planning Office, regarding Little Horsethief Canyon Subdivision, Teton County, Wyoming. (Attachment 1, #15)
This subdivision will impact wildlife in the area and in adjacent areas, particularly in the winter. "Unrestricted winter movements of elk to this South Park winter range is essential in this area…" as are fencing standards, pet control methods and setbacks/buffers between the National Forest boundary and the proposed subdivision.

Wyoming Game and Fish Department, Oct 6, 1993. Letter from Tom Toman, District 1 Supervisor to Tom Campbell, President, Biota Research and Consulting, Inc. regarding elk and the NRO. (Attachment 2)
Elk are fed to make up for deficiencies in natural winter range, which does not diminish the importance of natural habitat, because feed grounds spread disease, and because it is generally preferable to have elk in native habitat. It is also important to consider migration corridors and access to feed grounds and winter range.

JHCA Publications
Jackson Hole Conservation Alliance, April 2008. "Evaluation of the NRO in Teton County, Wyoming." 30pp. Available at www.jhalliance.org. (Attachment 2, 23)
These maps illustrated areas where one or more species of focus (mule deer, elk, moose, cutthroat trout, trumpeter swans and bald eagles) has overlapping critical winter range, breeding habitat and migration routes. Sage grouse, bighorn sheep, mountain goat, and pronghorn antelope were also considered. This report does not include policy analysis; it simply provides an overview of the best available science, some of which was outdated. Also, research is not conducted in many geographic areas in the county; geographic regions for data gaps are not visually depicted.

The findings of the NRO for the study area highlighted the Flat Creek corridor in South Park, areas to the north and south of Highway 22 and minimal crossings of Highway 22.

Jackson Hole Alliance for Responsible Planning, Dec 1991. "Wildlife in the Town of Jackson- Maintaining Wildlife Resources in an Urban Setting." Available at the JHCA office. 10pp. (Attachment 1, #16, Attachment 15)

People developed the Town of Jackson in its current location for the same reason that animals preferred this site historically; it is where there is the least snow accumulation and the most protection from the elements in the winter. The Town used to be a major haven/habitat for about 200 species of wildlife (big and small), but now only hillsides, Cache Creek and Flat Creek remain for that wildlife. We need to protect those last few habitats by planning smart, and planning for humans and animals to coexist here in Town. Migration routes and critical winter ranges have been cut off, which is a threat to the very survival of many species.

Wildlife is present in town, in our back yards, as our cash cow, bringing tourist dollars. We need to preserve our gateway portion of the largely intact Greater Yellowstone Ecosystem, something that is extraordinarily valuable to our community, the county and the world. Higher density development will result in more displacement of animals. And, if you move deer, for example, to other habitats that might already have deer, then you risk exceeding the carrying capacity for that area and the resultant death of some of the population.

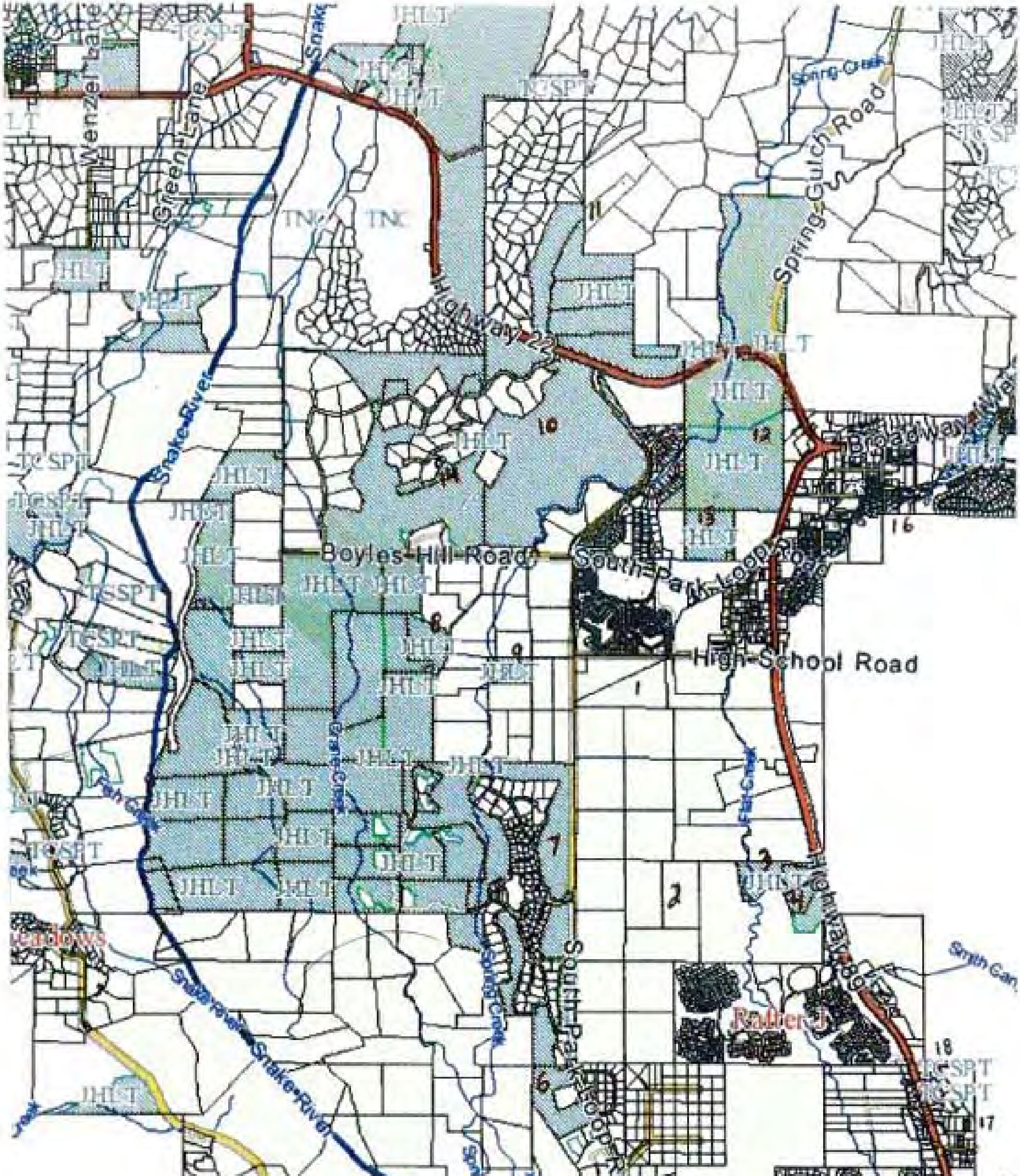
Appendix B: Maps, Images and Attachments

Table of Contents
(Citations can be found on the maps)

Wildlife Values:

20. Area natural resources inventory map – South Park Master Plan study
21. Area riparian zones – Michael Wells report
22. Migratory Bird Day Count Data for South Park - Susan Patla, Wyoming Game and Fish Department

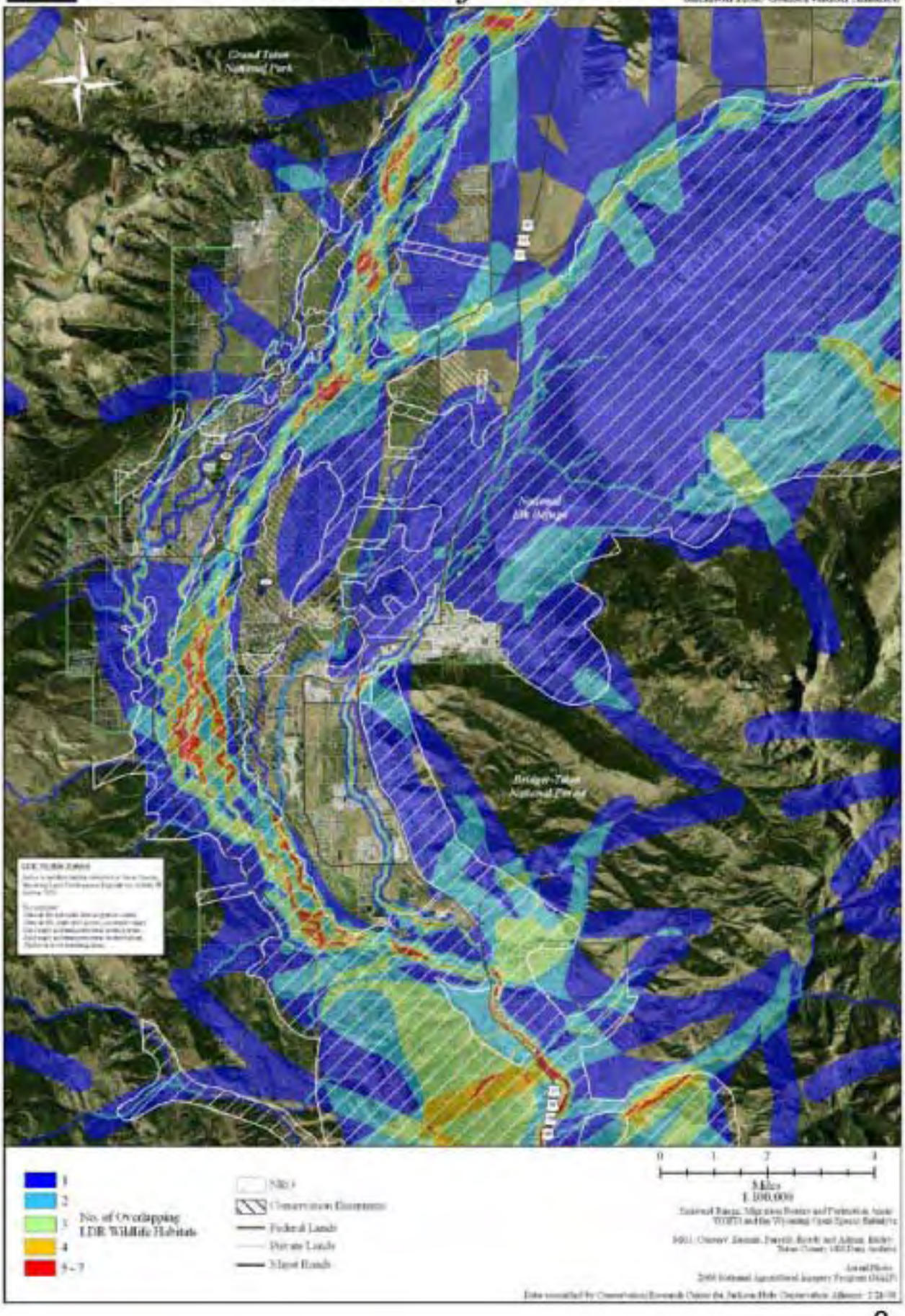
Scenic Values:
23. Scenic Resources Overlay (SRO) map – Teton County GIS server
24. Area viewsheds



Teton County Wyoming GIS MapServer, www.tetonwyo.org.
Accessed 5/09.

45

LDR Wildlife Habitat



Wyoming Game and Fish Department Habitat Priority Areas

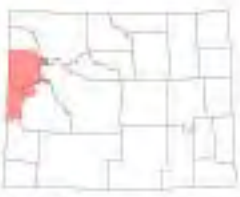
Revised January 2009

Jackson Region - Crucial Priority Areas

Crucial

Wildlife Region

Fish Region



See WGFD 2009 Strategic Habitat Plan for information on priority areas.

GIS Section
2/12/2009

http://gf.state.wy.us/habitat/portal/index.asp

Wyoming Game and Fish Department Habitat Priority Areas

Revised January 2009

Jackson Region - Enhancement Priority Areas

Enhancement

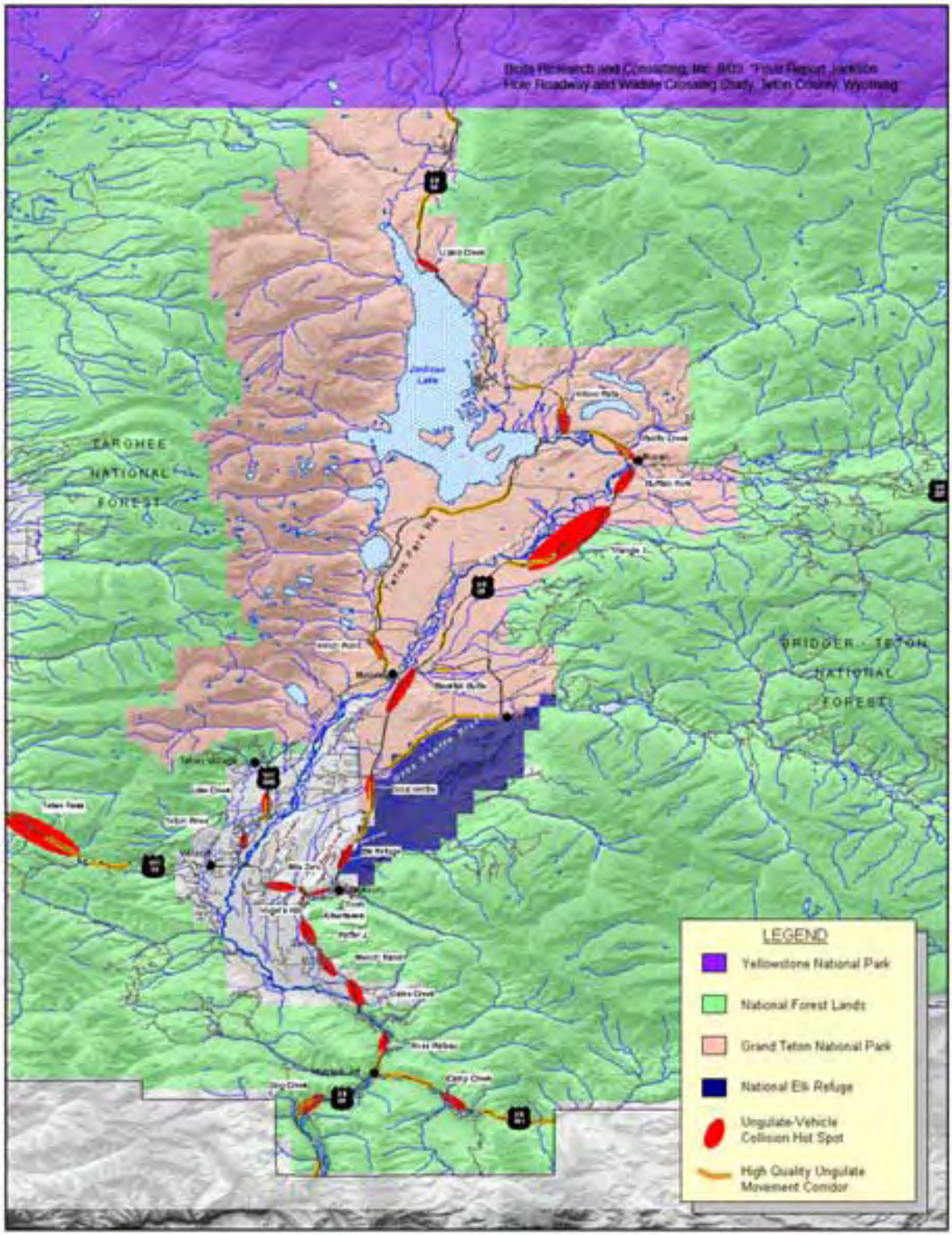
Wildlife Region

Fish Region

See WGFD 2009 Strategic Habitat Plan for information on priority areas.

GIS Section
2/12/2009

http://gf.state.wy.us/habitat/portal/index.asp



JACKSON HOLE WILDLIFE FOUNDATION

P. O. Box 8042
Jackson, Wyoming 83002-8042
Phone: 307-739-0968 Fax: 307-739-0968
www.jhwildlife.org

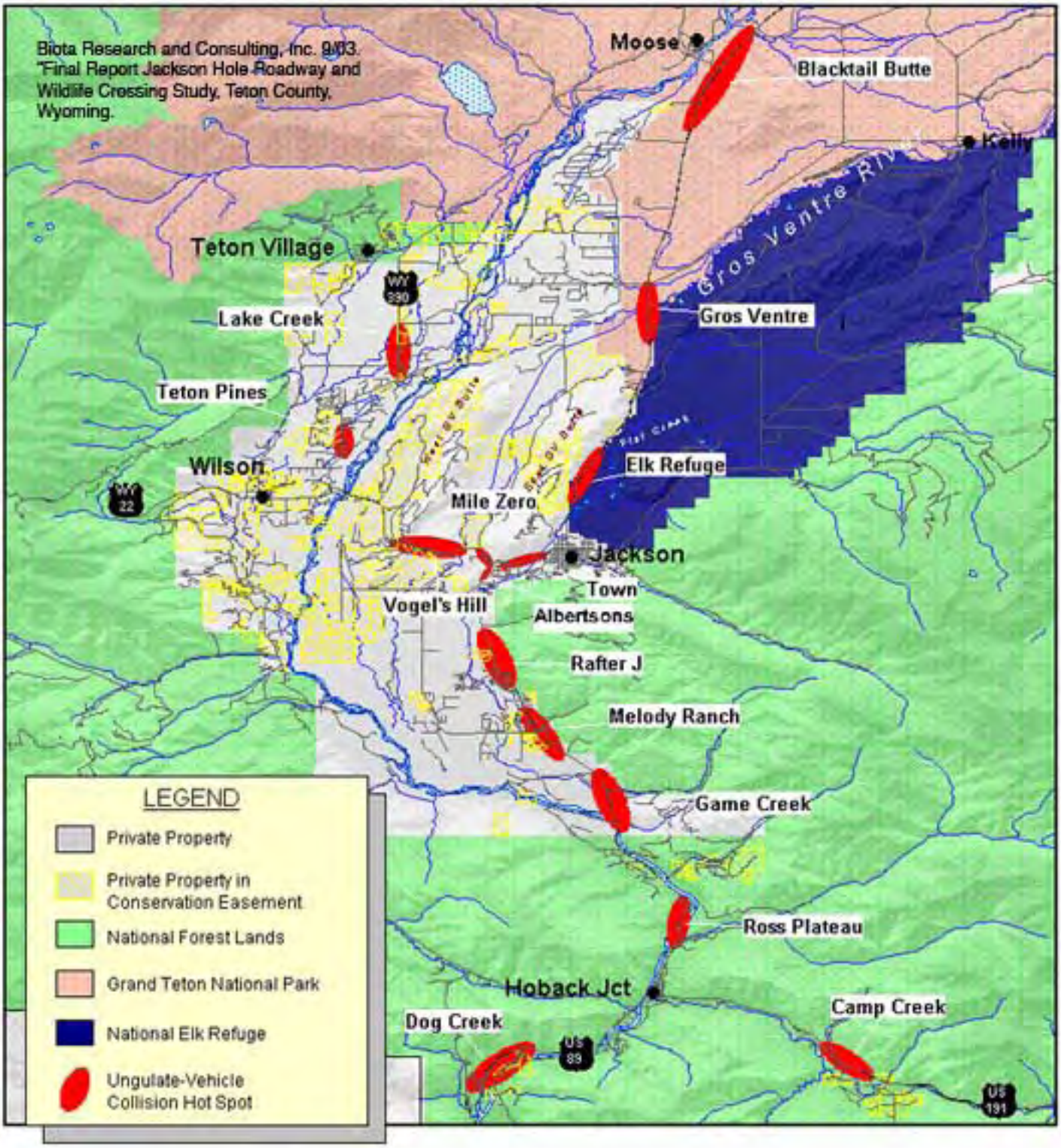
Attachment 3. Ungulate vehicle collision hotspots and potential movement corridors in Teton County, Wyoming.

Scale: 1 inch = 4.5 miles

Data Sources: Biota (hotspots derived from JHWF roadkill dataset), American Wildlands (movement corridors derived from Ungulate Habitat Connectivity Analysis); Teton County (hydrology and roads); TNP, BTNP, and GTNP (roads); USGS (NED)

Biota

P. O. Box 8178 - 211 East Broadway
Jackson, Wyoming 83002-8178
Phone: 307-733-4216 Fax: 307-733-1240
www.biotaresearch.com



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Phone: 307-739-0968 Fax: 307-739-096
www.jhwildlife.org

Attachment 5. Ungulate hotspots and protected properties within the private land-dominated portion of Teton County, Wyoming.

Scale: 1 inch = 2.5 miles

Data Sources: Biota (hotspots derived from JHWF roadkill dataset, movement corridors derived from American Wildlands Logistic Habitat Connectivity Analysis), Teton County (hydrology, roads, and [illegible] TNF, and

See Appendix 12 for abbreviation list.

Biota
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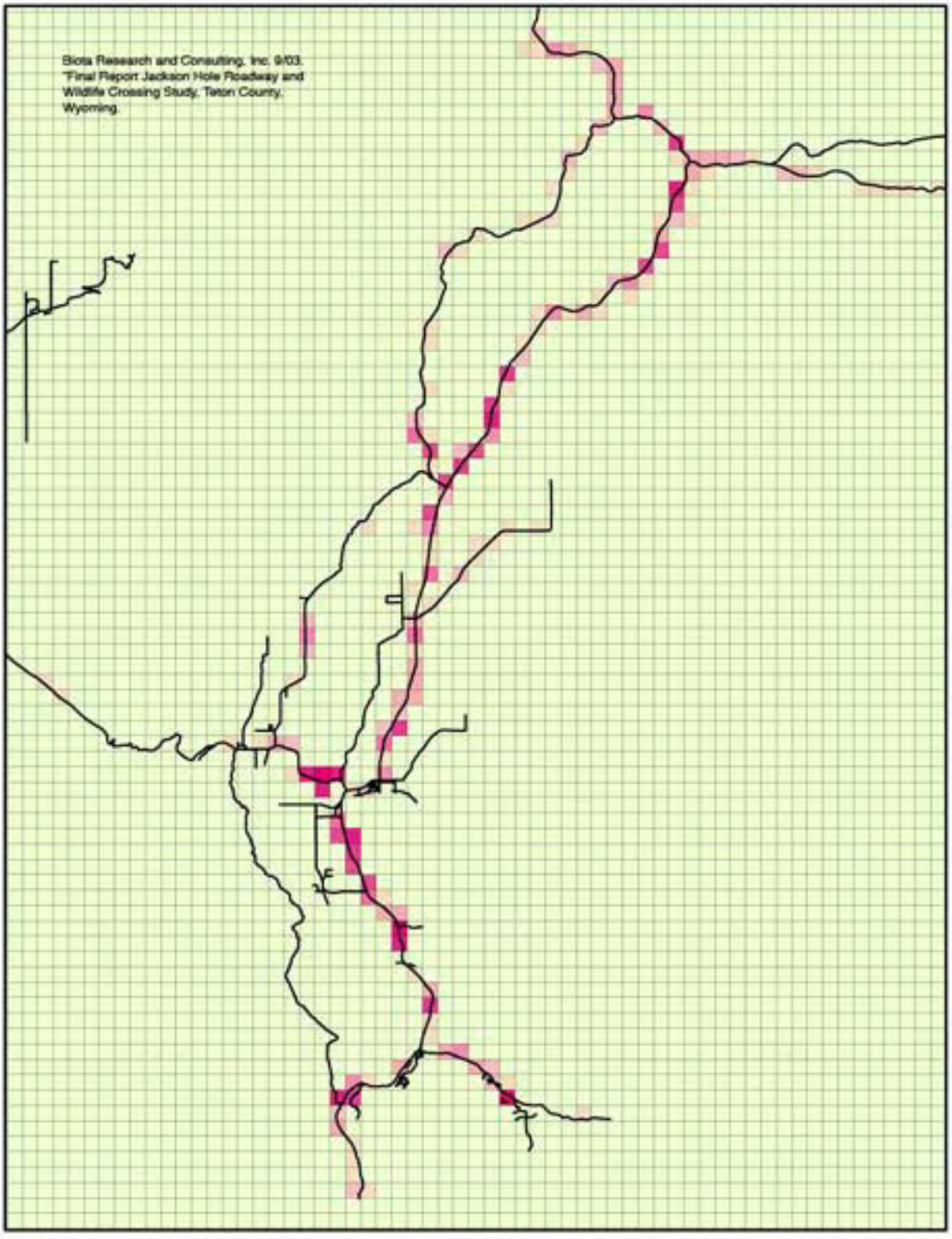

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Elk vehicle collisions per square km

- 14 to 21
- 9 to 14
- 7 to 9
- 6 to 7
- 5 to 6
- 4 to 5
- 3 to 4
- 2 to 3
- 1 to 2
- 0 to 1

Thematic Region Map, Cell Size = 1 km
Custom Classification Method, 10 Classes
Analyses based on JHWF roadkill dataset

Scale: 1 inch = 4.9 miles

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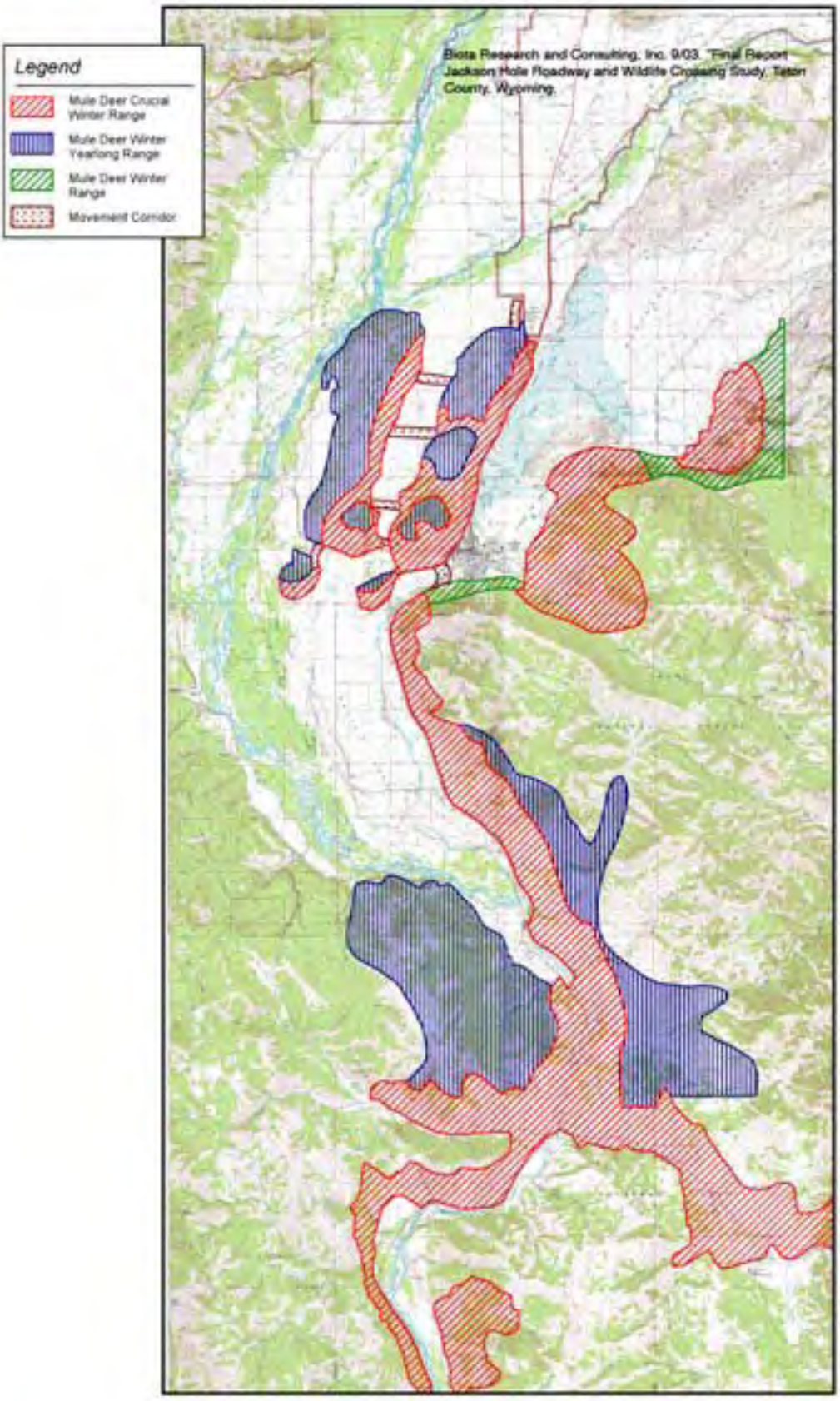

Teton County, Wyoming

Mule deer crucial winter range, winter yearlong range and winter range on private lands in Jackson Hole, Wyoming.

Approximate Scale: 1 inch = 10,000 feet

Biota

P. O. Box 8578 - 211 East Broadway
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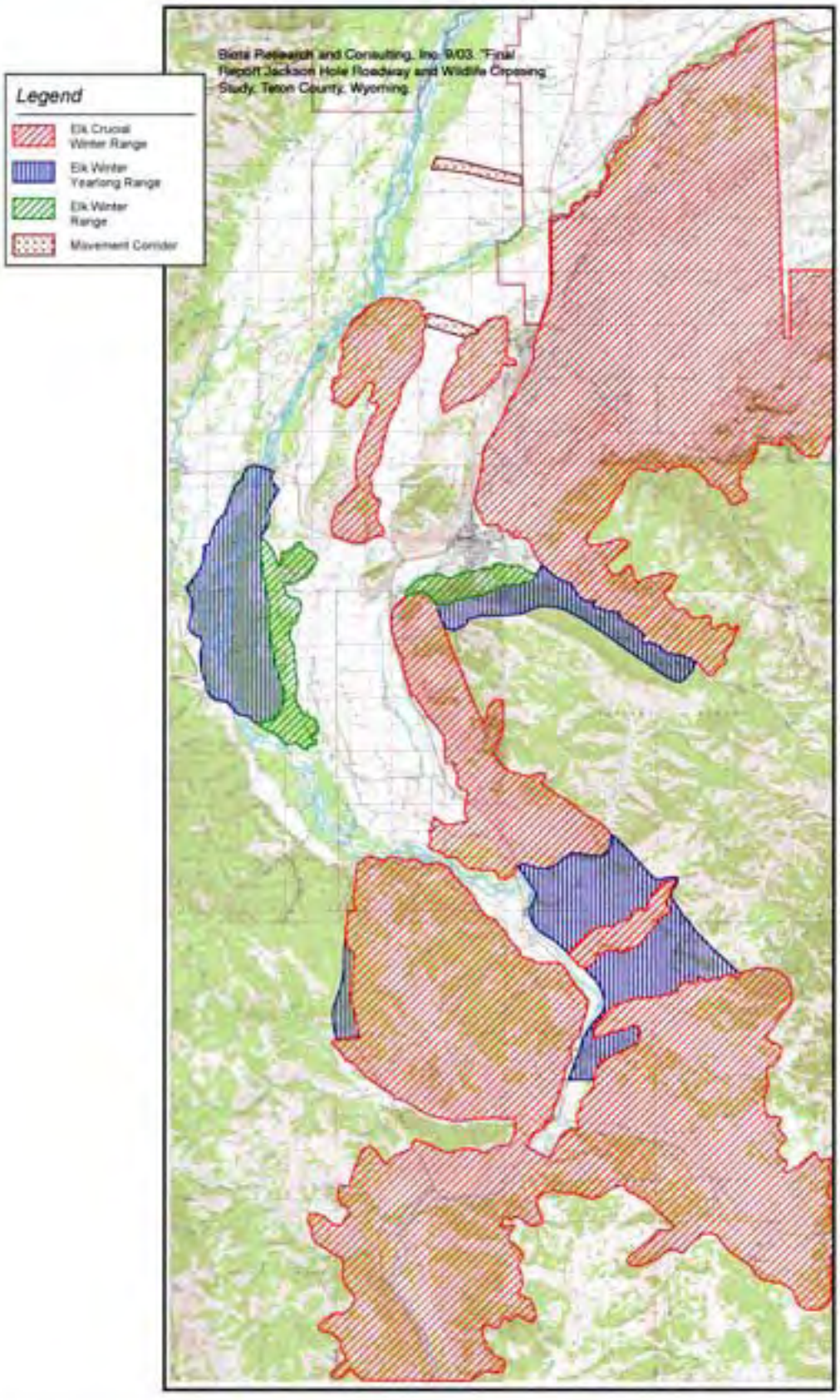
Phone: 307-733-4220 Fax: 307-733-1243
www.biotaresearch.com



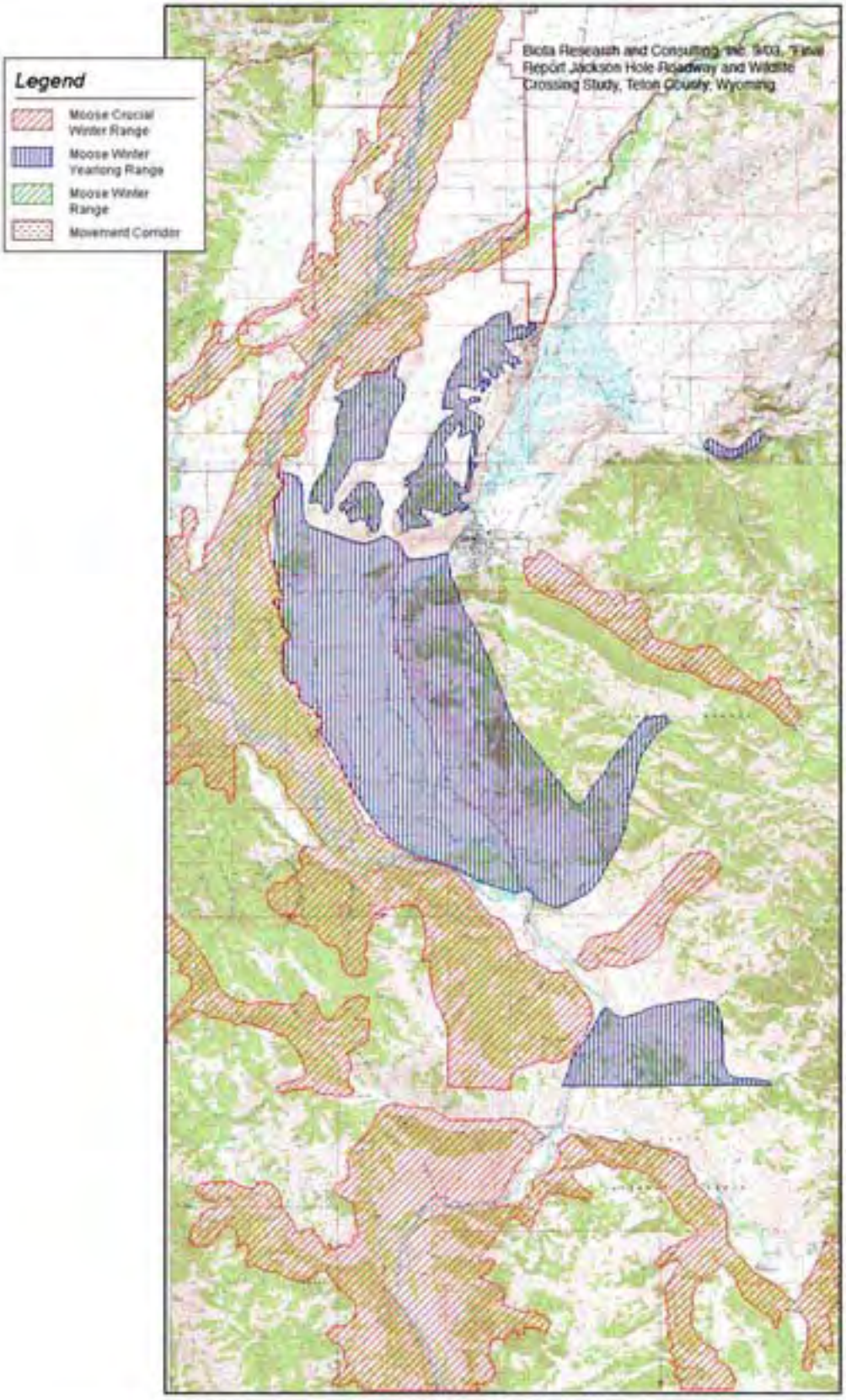
Teton County, Wyoming

Elk crucial winter range, winter yearlong range and winter range on private lands in Jackson Hole, Wyoming.

Approximate Scale: 1 inch = 10,000 feet

Biota

P. O. Box 8378 - 211 East Broadway
Jackson, Wyoming 83002-8378
Phone: 307-733-4220 Fax: 307-733-1245
www.biotaresearch.com



Teton County, Wyoming

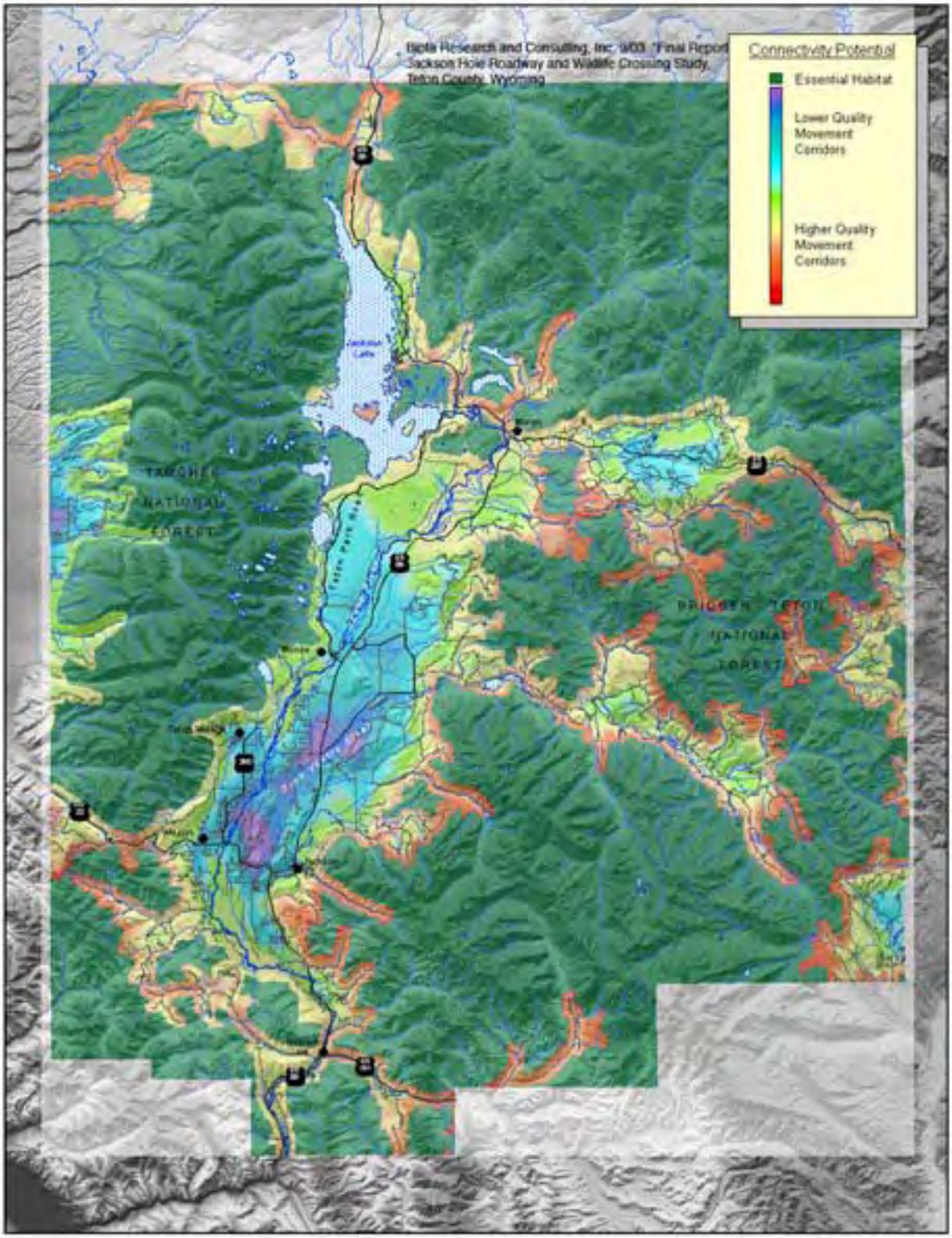
Moose crucial winter range, winter yearlong range and winter range on private lands in Jackson Hole, Wyoming

Approximate Scale: 1 inch = 10,000 feet

Biota

P. O. Box 1570 - 211 East Broadway
Jackson, Wyoming 83002-1570
Phone: 307-733-4216 Fax: 307-733-1345
www.biotaresearch.com

http://www.jhwildlife.org/_images/graph_large.gif



JACKSON HOLE WILDLIFE FOUNDATION

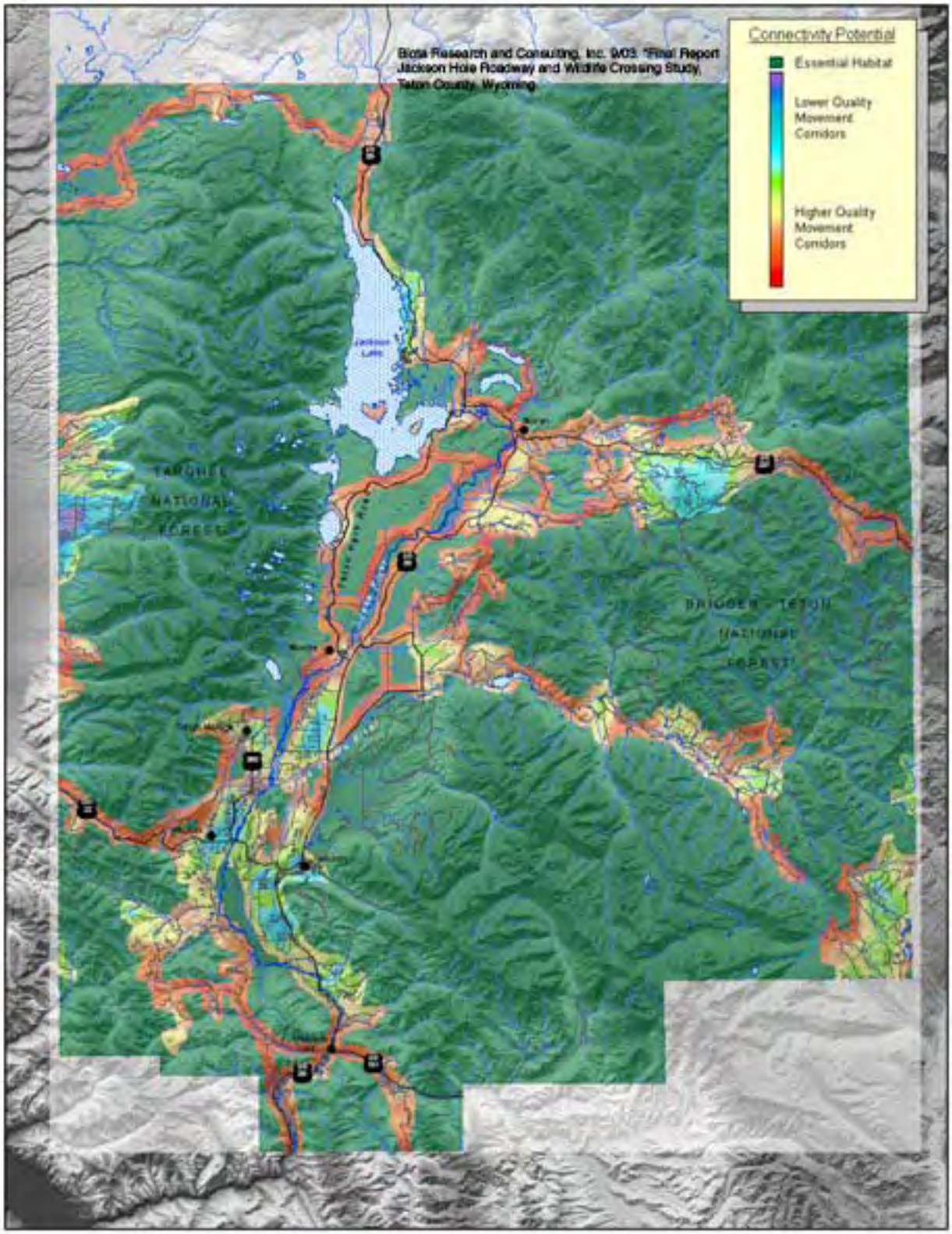
Attachment 2. Large Carnivore Habitat Connectivity Analysis -quality of potential movement corridors across roads in Teton County, Wyoming

Scale: 1inch = 5.5 miles

Data Sources: American Wildlands (Large Carnivore Habitat Connectivity Analysis), C. Carroll (U.I.C. 90m multi-state Gap Analysis); Teton County (assessor, parcel, hydrological, and road data); TNF, BTNF, and GTNP (roads); USGS (NED and DOQQs)

Biota

American Wildlands
AWL GIS Lab



JACKSON HOLE WILDLIFE FOUNDATION

Attachment 1. Ungulate Habitat Connectivity Analysis
quality of potential movement corridors
across roads in Teton County, Wyoming

Scale: 1 inch = 3.3 miles

Data Sources: American Wildlands (Ungulate Habitat Connectivity Analysis); C. Carroll (ULC: Wile multi-state Gap Analysis); Teton County (assessor, parcel, hydrological, and road data); TNF, BTNF and GTNP (roads); USGS (NED and DOQQs)

Biota

American Wildlands
AWL GIS Lab

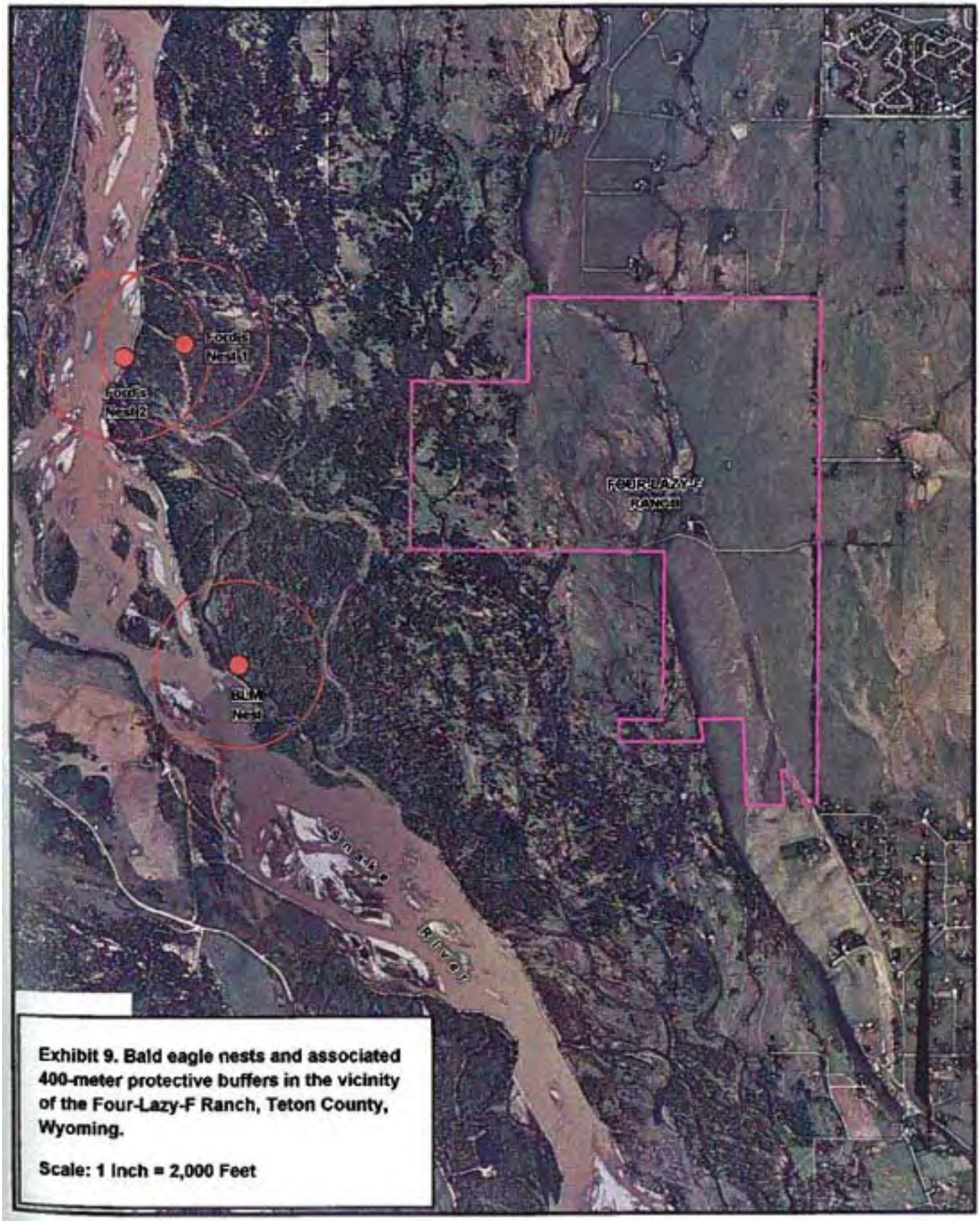
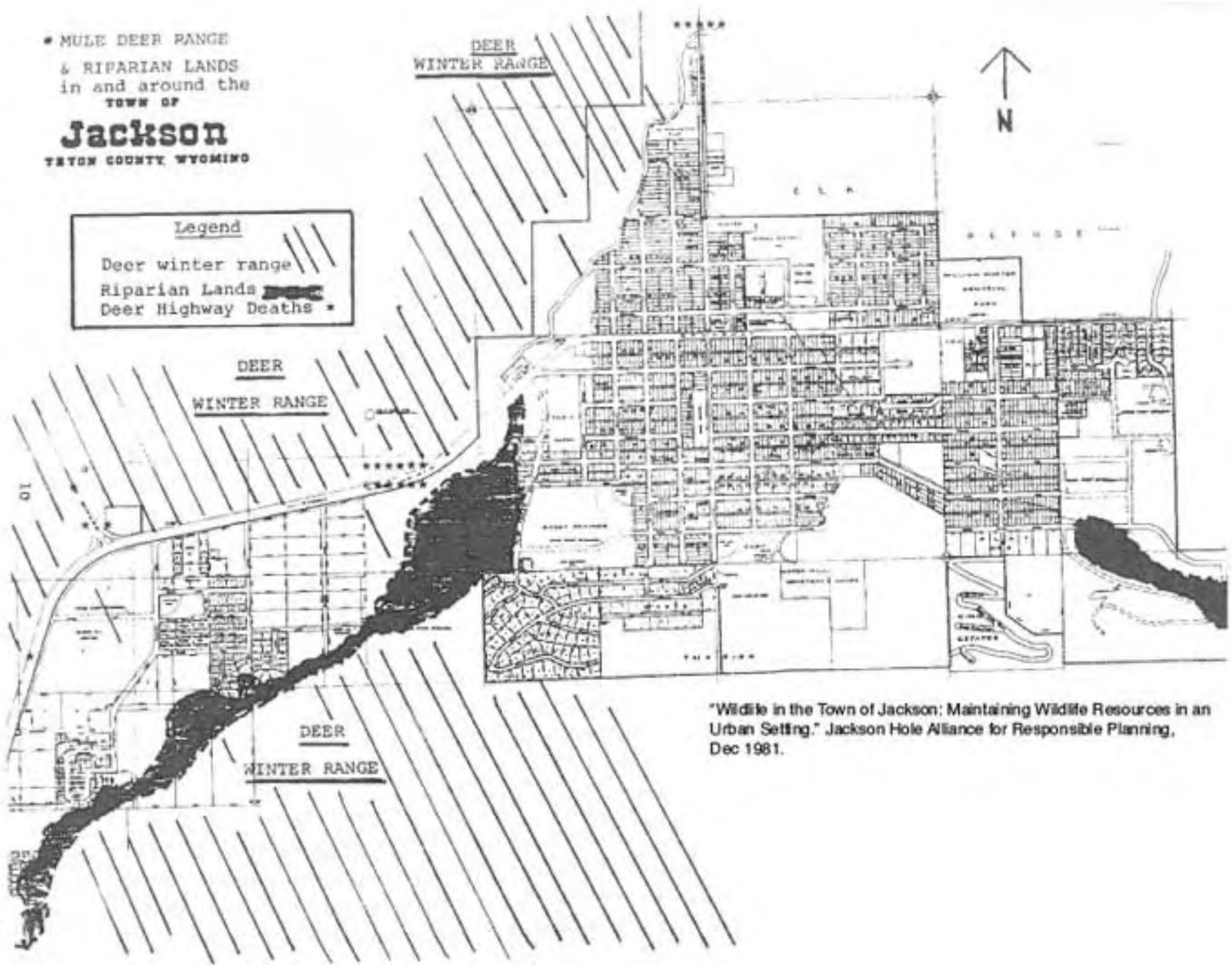
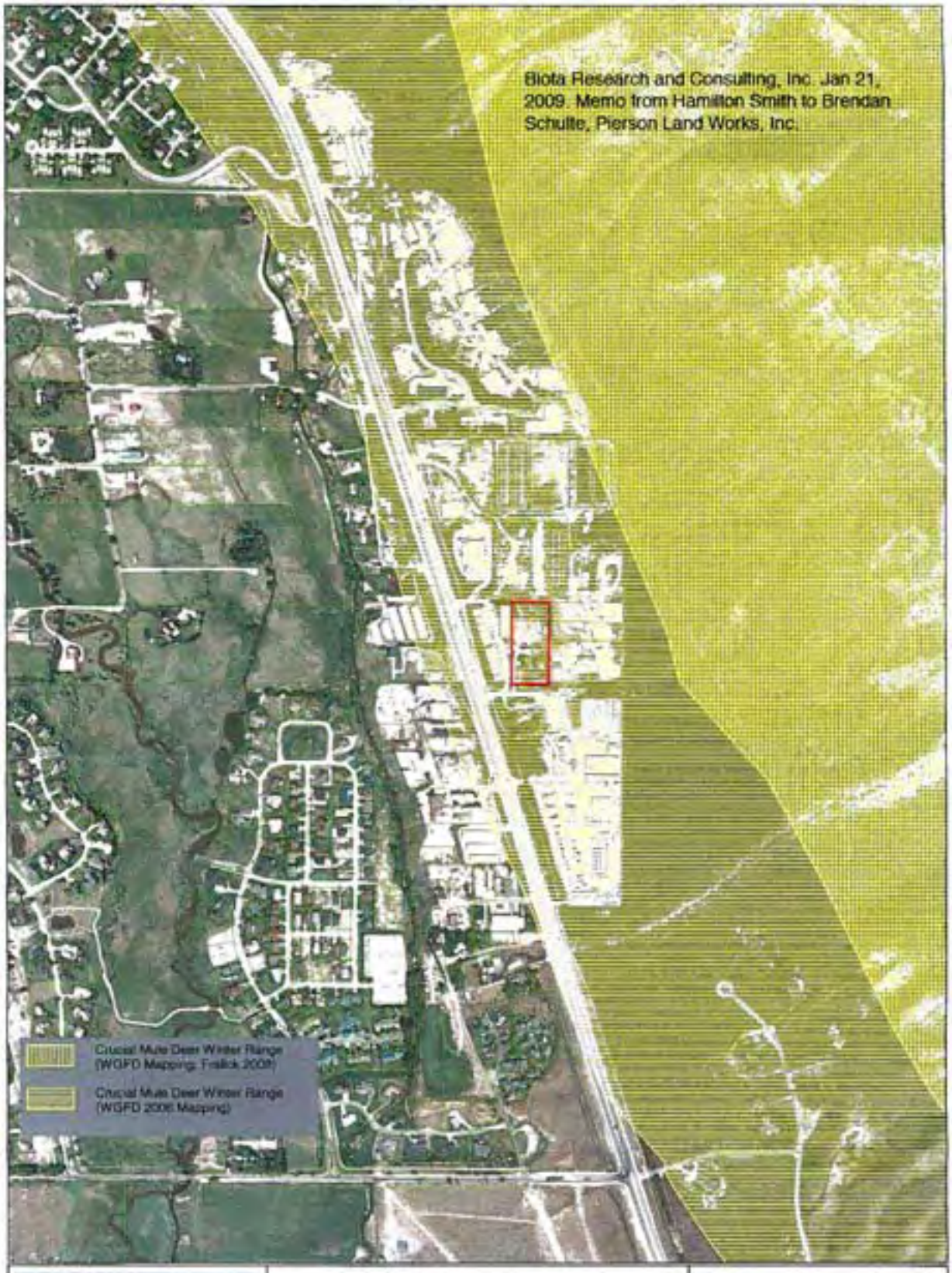


Exhibit 9. Bald eagle nests and associated 400-meter protective buffers in the vicinity of the Four-Lazy-F Ranch, Teton County, Wyoming.

Scale: 1 Inch = 2,000 Feet



"Wildlife in the Town of Jackson: Maintaining Wildlife Resources in an Urban Setting." Jackson Hole Alliance for Responsible Planning, Dec 1981.



LEGEND

Project Area

Platted Parcels

Attachment 4
Aerial photograph depicting crucial mule deer winter range on and in the vicinity of the Everok property, Lot 12 Valley View Subdivision, Teton County, Wyoming.

January 21, 2009

Approximate Scale: 1 inch = 500 feet

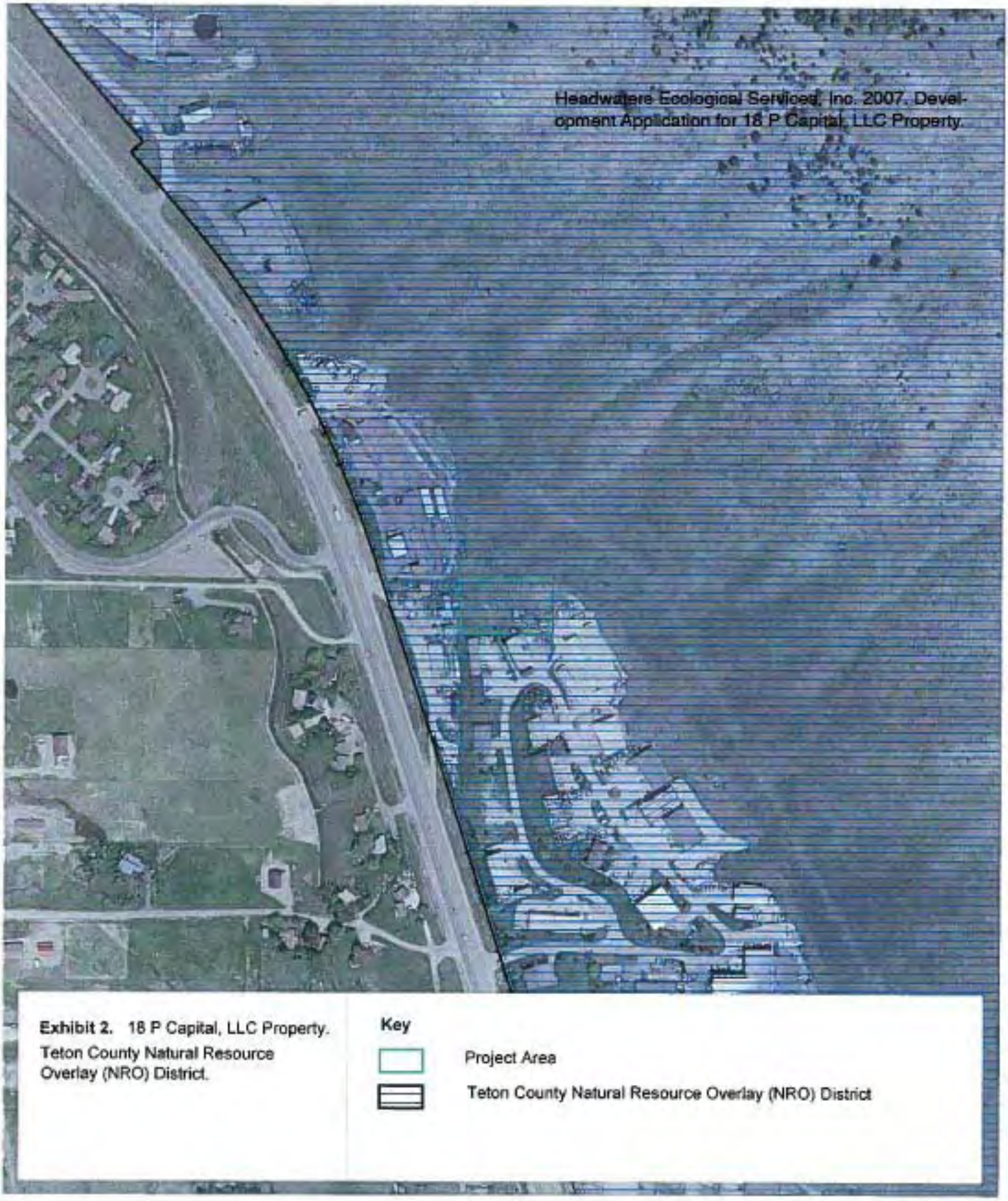


Exhibit 2. 18 P Capital, LLC Property. Teton County Natural Resource Overlay (NRO) District.

Figure 6. Locations of wintering mule deer from 1981-92 and crucial winter range on and in the vicinity of the Teton Science School - Jackson Campus project area, Teton County, Wyoming.

Approximate Scale: 1" = 1,000'

B i o t a

P. O. Box 8578 - 211 East Broadway
Jackson, Wyoming 83002-8578
Phone: 307-733-4216 - Fax: 307-733-1245

"Environmental Analysis - Teton Science Schools Jackson Campus," Biota, June 2002.

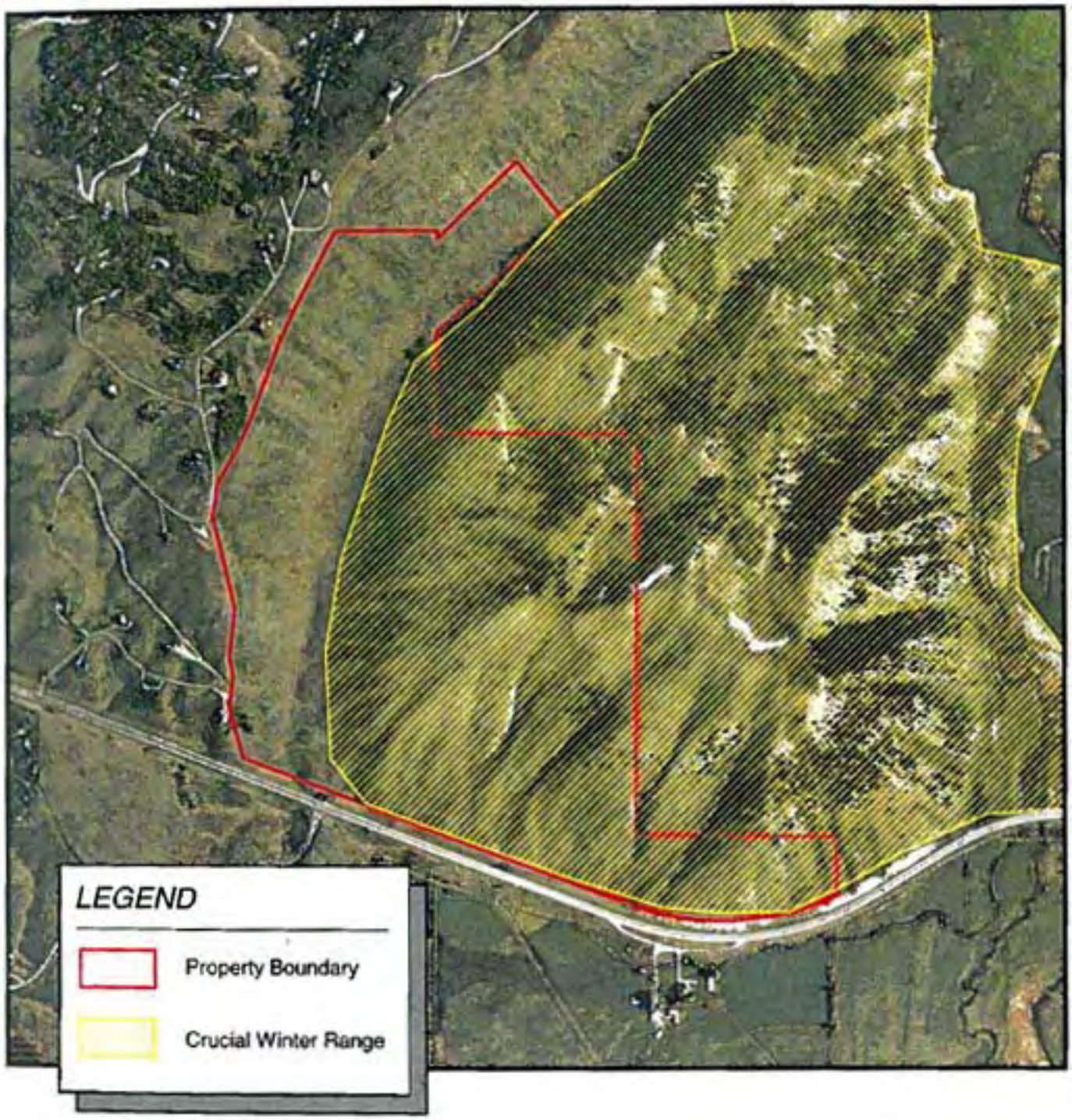
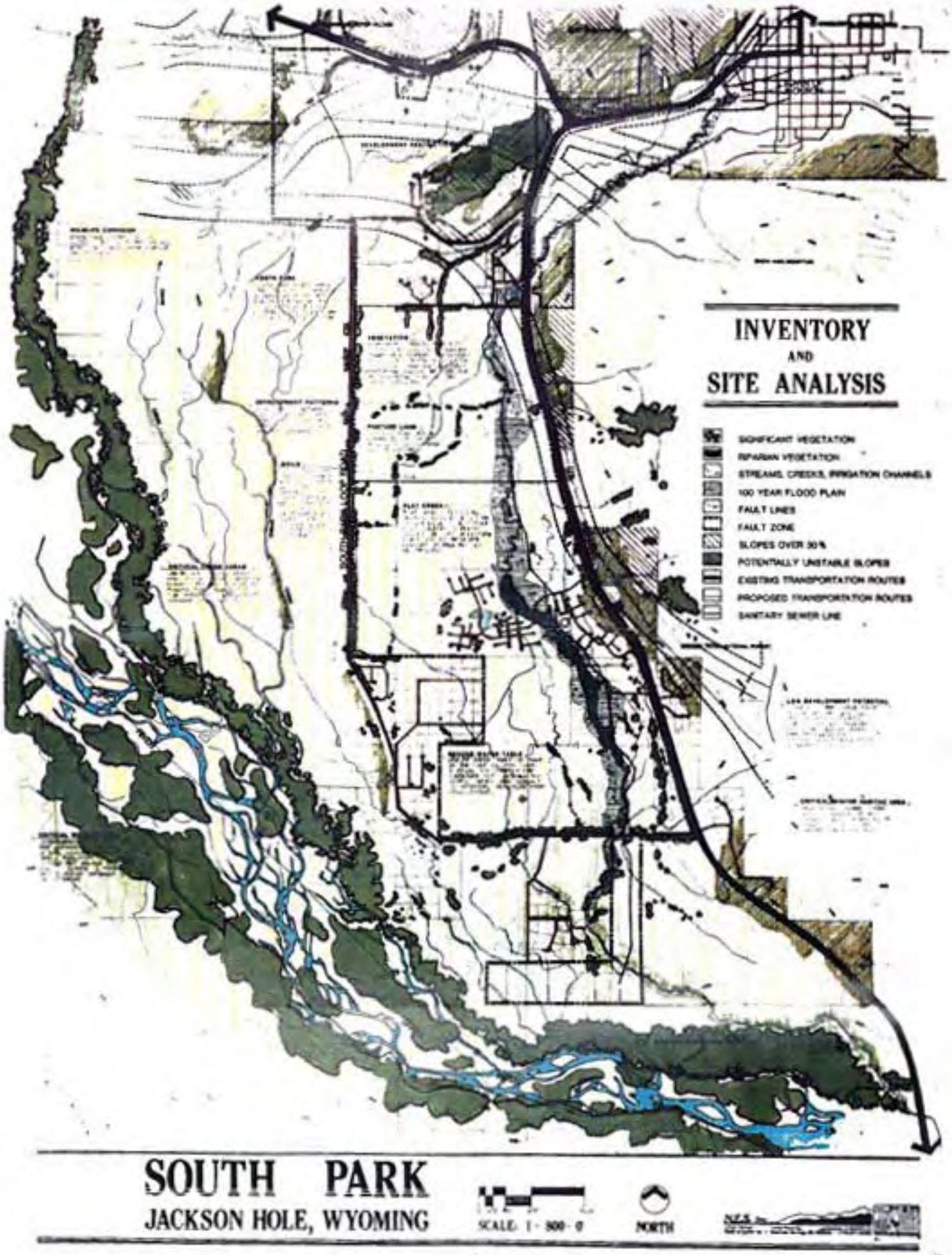


Figure 7. Crucial elk winter range on and in the vicinity of the Teton Science School - Jackson Campus project area, Teton County, Wyoming.

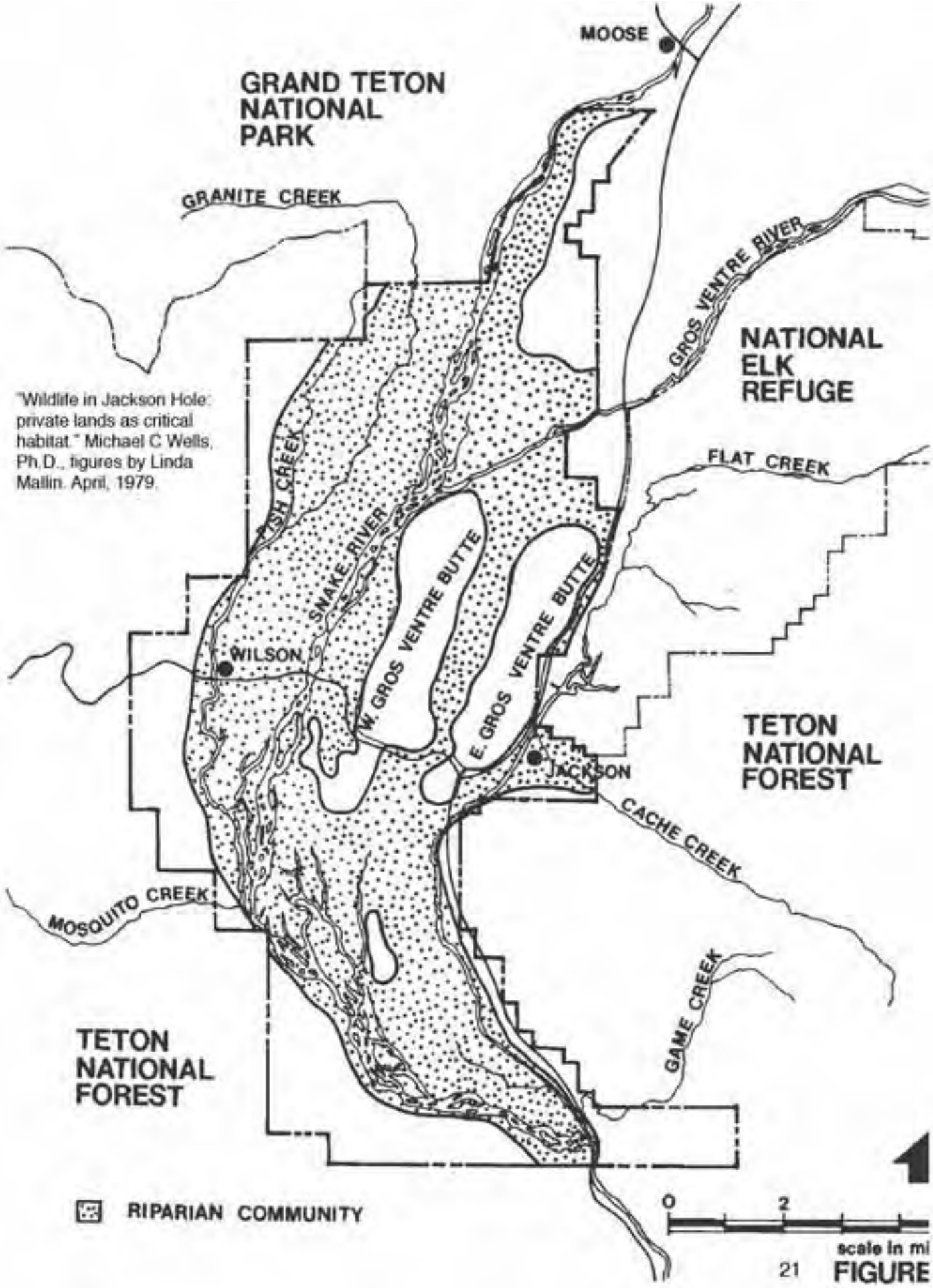
Approximate Scale: 1" = 1,000'

Biota
P. O. Box 8578 - 211 East Broadway
Jackson, Wyoming 83002-8578
Phone: 307-733-4216 - Fax: 307-733-1425

17 "Environmental Analysis - Teton Science Schools Jackson Campus," Biota, June 2002.



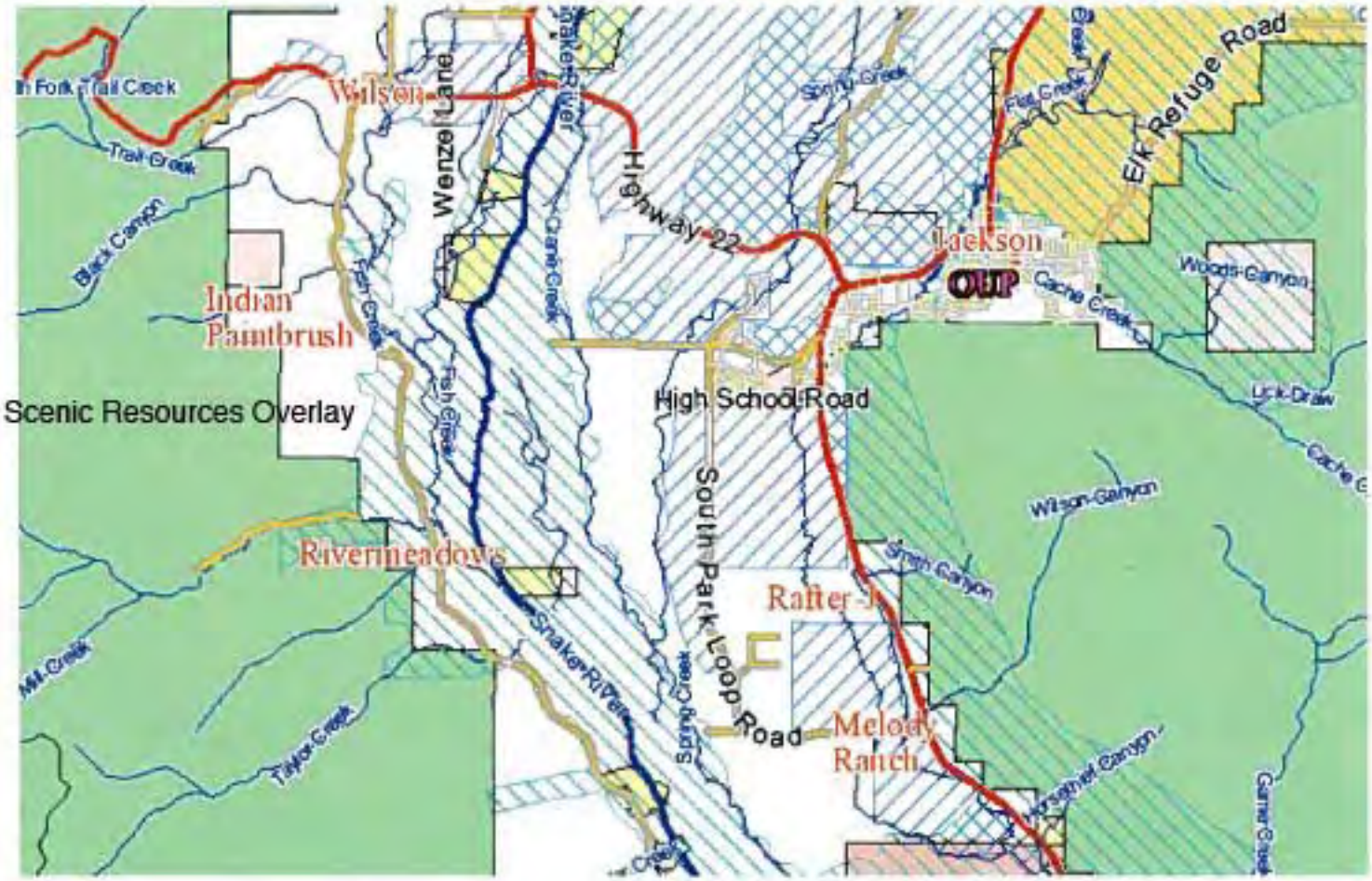
"South Park Master Plan Study." N.E.S. Inc. Jackson, Wy. 1989.


MOOSE
GRAND TETON NATIONAL PARK
GRANITE CREEK
GROS VENTRE RIVER
NATIONAL ELK REFUGE
"Wildlife in Jackson Hole: private lands as critical habitat." Michael C Wells, Ph.D., figures by Linda Mallin. April, 1979.
FISH CREEK
SNAKE RIVER
FLAT CREEK
W. GROS VENTRE BUTTE
E. GROS VENTRE BUTTE
WILSON
JACKSON
TETON NATIONAL FOREST
CACHE CREEK
MOSQUITO CREEK
GAME CREEK
TETON NATIONAL FOREST
RIPARIAN COMMUNITY
0
2
scale in mi

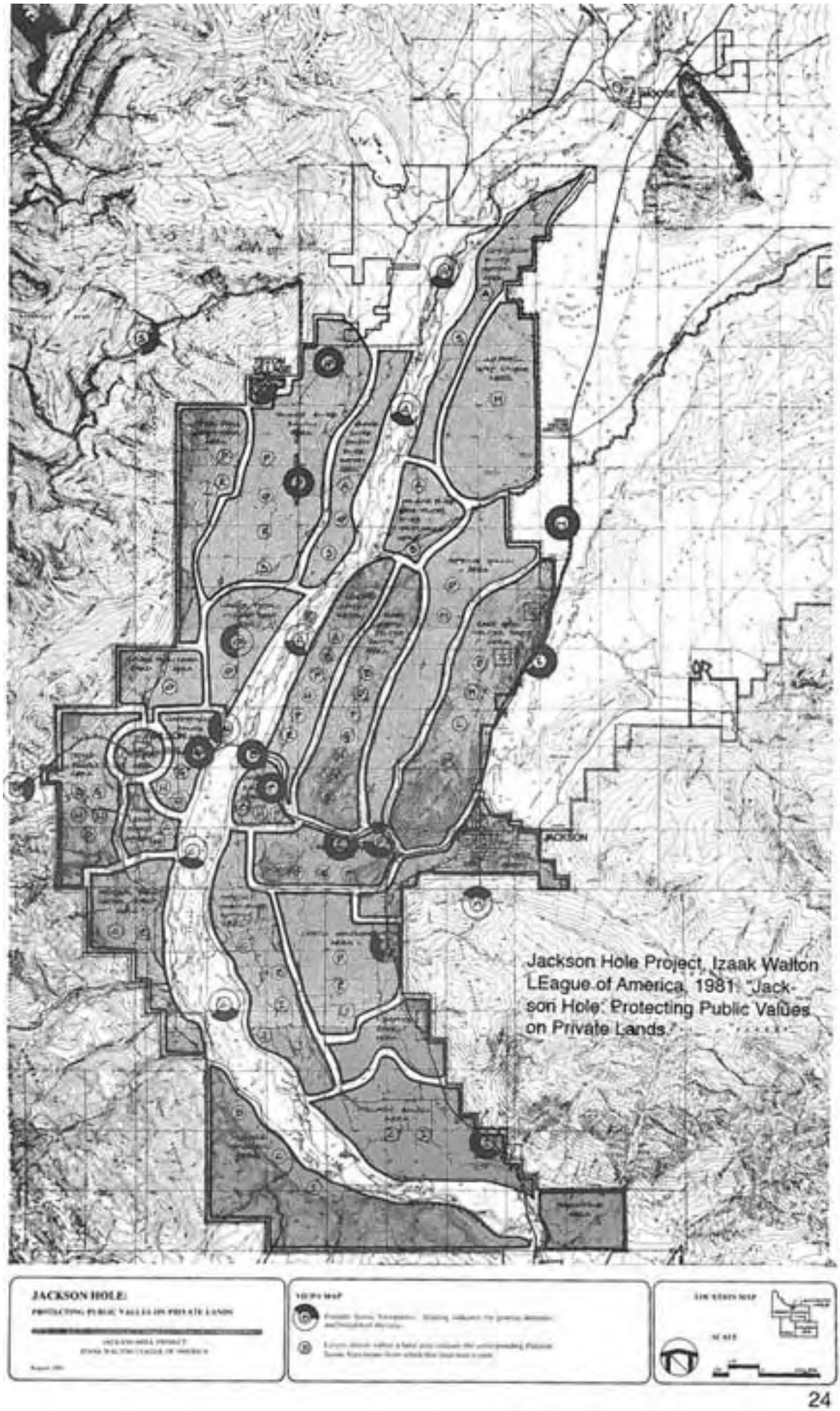
21 FIGURE

South Park Migratory Bird Day Counts							
Susan Patla, WGFD							
	Species	**15-May-09**	**24-May-08**	**19-May-07**	**20-May-06**	**14-May-05**	**Notes For 2009 count**
1	Canada Goose	49	25	50	23	13	1 brood of 4 young
2	Trumpeter Swan	3	2	3	2	2	pair nesting on middle habitat pond
3	Gadwall	67	60	20	many	37	
4	American Wigeon	14	24	12	2		
5	Mallard	18	14	10	many	13	
6	Blue-winged Teal	4					
7	Cinnamon Teal	14	22	12	8	2	
8	Northern Shoveler	2	10	2	4		
9	Green-winged Teal	6	4	6	6	2	
10	Canvasback	2		5			
11	Redhead	9	6	1	6		
12	Ring-necked Duck	32	12	3	4	3	
13	Lesser Scaup	25	28	8	25	2	
14	Bufflehead	8					
15	Common Goldeneye		1				
16	Barrow's Goldeneye	18	70	10	5	4	
17	Common Merganser	3	12	6	7	4	
18	Ruddy Duck	1	15	8	2		
19	Pied-billed Grebe	2	2	1	3		
20	Eared Grebe		5				
21	Western Grebe	1	4				
22	American White Pelican	19	1	16	25	29	
23	Great Blue Heron	6	10	10	5	1	
24	Great Egret			1			
25	White-faced Ibis		2		22		
26	Turkey Vulture	3			1		
27	Osprey	2		3	2		
28	Bald Eagle	7	4	3	2	1	3 adults, 4 immatures, 2 nestlings
29	Northern Harrier		1				
30	Swainson's Hawk				1		
31	Red-tailed Hawk	3	3	6	1	2	
32	Ferruginous Hawk	1					reported late in day
33	American Kestrel	3	4	2	2		
34	Sora	2	1	1	2	2	
35	American Coot	30	40	6	few	3	
36	Sandhill Crane	3	2				
37	Killdeer	1	3	3	1	2	
38	Spotted Sandpiper	6	2	6	9	2	
39	Willet		1				
40	Wilson's Snipe	3			1	2	
41	Wilson's Phalarope	2	21	12	26		
42	Franklin's Gull		2		1		
43	Morning Dove	2		3	6		
44	Calliope Hummingbird		1	2	2	1	
45	Broad-tailed Hummingbird		1	1	1		
	Hummingbird, sp.	1					one female seen briefly
46	Belted Kingfisher	2	1	1	3	2	
47	Red-naped Sapsucker		2	1			
48	Downy Woodpecker		1	2			
49	Hairy Woodpecker	1					
50	Northern Flicker	10	4	6	10	4	
51	Dusky Flycatcher		1		3		
52	Eastern Kingbird		3	8	3		
53	Warbling Vireo			3			

54	Black-billed Magpie	10	5	10	1	10	
55	American Crow	1		1			
56	Common Raven	8	5	3	2	2	
57	Tree Swallow	45	200	20	many	7	
58	Violet-green Swallow		6	1	few		
59	N. Rough-winged Swallow	1	2	4			
60	Bank Swallow		2	2	8		
61	Cliff Swallow		5	2	1		
62	Barn Swallow	4	10	6	2	4	
63	Black-capped Chickadee	8	3	2	2	12	
64	Red-breasted Nuthatch	1					
65	White-breasted Nuthatch				1		
66	House Wren	4	1	6	1		
67	Marsh Wren	6	1	15	20	30	
68	Ruby-crowned Kinglet	2		1	1	5	
69	Mountain Bluebird		1	1			
70	American Robin	20	1	30	many	19	
71	Gray Catbird		1				
72	European Starling	20	2	30	many		
73	Orange-crowned Warbler		1				
74	Yellow Warbler	8	5	30	20	12	
75	Yellow-rumped Warbler	50	25	8	3	8	
	Myrtle Warbler (wh throat)	1	1			1	
76	Common Yellowthroat	2	1	2		1	
77	Western Tanager				2		
78	Chipping Sparrow		200	1		2	
79	Lark Sparrow		1				
80	Vesper Sparrow			2	0	3	
81	Savannah Sparrow	10	5	25	4		
82	Song Sparrow	40	5	30	12	10	
83	Lincoln's Sparrow		2	1	2	1	
84	White-crowned Sparrow	1	3				
85	Dark-eyed Junco		1				
86	Black-headed Grosbeak			1			
87	Lazuli Bunting			1			
88	Red-winged Blackbird	49	15	15	8	11	
89	Western Meadowlark	1	1			1	
90	Yellow-headed Blackbird	60	50	35	15	6	
91	Brewer's Blackbird	4			few		
92	Brown-headed Cowbird	8	2	4	8	7	
93	Bullock's Oriole		1	8	5		
94	Pine Siskin		10	12			
95	American Goldfinch	3	1	3	8		
	Total Number	**752**	**697**	**409**	**258**	**203**	
	Total Species	**64**	**74**	**69**	**66**	**41**	
	Amphibians						
	Boreal Toad						
	Chorus Boreal Frog	calling					
	Muskrat	1					
	Racoon						
	Mule Deer						
	White-tailed Deer	2					
	Coyote	2					



Teton County Wyoming GIS MapServer, Scenic Resources Overlay. www.tetonwyo.org. Accessed 6/09.



Jackson Hole Project, Izaak Walton LEague of America, 1981. "Jackson Hole: Protecting Public Values on Private Lands."

Appendix C: Inventory of Species noted in studies/inventories/assessments

Mammals:
Badger
Bat
Beaver
Big horned sheep
Coyote
Deer mice
Elk
Fox
Ground squirrel
Mink
Moose
Mountain lion
Mule Deer
Muskrat
Pocket gopher
Pronghorn antelope
River otter
Shrew
Skunk
Vole
Weasel
White Tailed Deer

Birds:
American widgeon
Bald eagle
Bank swallow
Barrow's goldeneye
Black-capped chickadee
Canada geese
Cinnamon teal
Clark's nutcracker
Common goldeneye
Common snipe
Gadwall duck
Great blue heron
Great horned owl
Great gray owl
Golden eagle
Goshawk
House sparrow
House wren
Hummingbird
Junco
Kestrel
Killdeer
Long-eared owl
Magpie
Mallard
Merlin
Mountain bluebird
Mountain chickadee
Mourning dove
Northern saw-whet owl
Northern pygmy owl
Osprey
Peregrine falcon
Prairie falcon
Raven
Red-tailed hawk
Red-winged blackbird
Robin
Rough-legged hawk
Ruffled grouse
Sandhill crane
Sharp shinned hawk
Songbirds
Spotted sandpiper
Swainson's hawk
Tree swallow
Trumpeter Swan
Whooping cranes
Widgeon
Yellow-headed blackbird

Fish:
Brook trout
Fine-spotted trout
Mountain whitefish
Red-sided shiner
Speckled and longnose dace
Utah chub
Yellowstone Cutthroat trout

Amphibians/Reptiles:
Chorus frog
Boreal toad
Garder snake
Tiger salamander
Western spotted toad

Appendix D: Excerpts from 1994 Plan regarding South Park

See the following pages for excerpts from the 1994 Comprehensive Plan concerning wildlife and scenic resources in the South Park area, many of which are absent in the new draft Plan.

plentiful. The Issues Map recognizes the distinction between general community commercial needs in the shopping areas along W. Broadway and lodging and visitor services which should be focused primarily on the Jackson core area. The Issues Map illustrates that the area in and around Snow King Resort will continue to be the major center for resort-type uses in Town.

The Community Issues Map also depicts such non-regulatory issues as urban design and transportation. It indicates that special treatments are needed for the Town's three major gateways: north and south Highway 89, and at Highway 22 entrance to Town. Through a properly designed combination of monument signage and landscaping, a favorable first impression of the community and a clear sense of arrival will be created, with the message that the traveler is leaving one type of character and entering a distinctly different type.

The "transit nodes", which are major transfer points or other key facilities associated with the bus system, are also indicated. For this system to expand to meet community-wide service needs, a major terminal and park-and-ride facility is recommended for consideration at the intersection of Highways 89 and 22. The Map also designates major links of the pathway system, reflecting the importance given in the visioning process to the ability to travel about the Town and County on foot, by horseback, by cycling, or cross country skiing.

The Issues Map indicates the need for special design guides to preserve the unique pedestrian character of the Town Square. As well, the commercial areas along south Highway 89 are designated for design improvements to parking, access, internal circulation, signage and landscaping to enhance the existing character and mitigate the Highway's "strip commercial" appearance.

In Teton County, the major issues tend to be broader and were of necessity mapped at a much smaller scale. The County Issues Map primarily depicts three areas of concern. The first is "open space." These are lands on which ranching should continue, wildlife habitat preserved, and the visual qualities of scenic vistas protected.

Examples include the hay meadows of South Park, the Spring Gulch scenic area, ranchlands along the Teton Village road, Buffalo Valley and the western most entrance to Teton County from Alta. These lands also include the Snake, Hoback, Gros Ventre and Buffalo Fork river corridors and those hillsides and butte sides which are crucial winter range for ungulates. These areas should be kept free of development to the maximum extent possible to help preserve rural character, critical wildlife habitat and important image-setting scenic vistas and river corridors, and to encourage the continuation of ranching and other types of traditional agriculture as a vital part of the community's character. The County should encourage the preservation of the rural character, critical wildlife habitat and important image-setting scenic vistas and corridors, and encourage the continuation of ranching and other types of traditional agriculture as a vital part of the community character. Where possible, the County should be flexible with its development regulations as an encouragement to landowners to permanently protect these wildlife, scenic and agricultural areas. In addition, where nonregulatory options are available, these should be encouraged. For example, a land trust's resource analysis in preparation for a conservation easement, may be sufficient to replace the County's site analysis.

The second type of area identified on the County Issues Map are the "neighborhood conservation" areas. These are lands which are already subdivided, and which have been determined to generally constitute acceptable patterns of development within already established boundaries. These lands include the vast majority of the large-lot platted subdivisions in the County, as well as planned developments, such as Rafter J, Spring Creek Ranch, Boyles Hill (Indian Springs) and Teton Pines. In these areas development will be allowed to continue as it was originally approved, with very little (if any) change to be effected by the land development regulations adopted to implement this Plan.

The third type of area shown on the County Issues Map is how new development relates spatially to the community's overall vision. These are the areas seen as appropriate for future growth and include the

Teton Village and Grand Targhee Resorts. This third type also includes new limited commercial areas near the Aspens and in Wilson and Hoback Junction, intended to meet the basic service needs of residents.

In addition, perhaps the most important areas for future development are the housing "cluster targets". These are areas which, from the standpoint of access, ability to provide services and/or contiguity with existing development, are most appropriate for relatively high density housing. One such area is in the northwest part of South Park at the south side of High School Road across from Cottonwood Park. Smaller potential affordable housing nodes are designated in Wilson and Hoback Junction adjacent to existing communities. It is this clustering of development potential, with its required open space preservation, that allows rural character objectives, such as wildlife and scenic resource protection, to be achieved.

Like the Town map, the County Issues Map also reflects an increasing awareness of the need for alternatives to automobile transportation. Areas to be considered for new or expanded transit service are depicted, including Wilson and Hoback Junction. Major links in the proposed pathway system are also shown.

Vision Statement

In order to provide the finishing touches to the visioning process and to better translate the community vision into plans and regulations, a vision statement was drafted, based on stated values of the community.

It is the vision of the citizens, planners and elected officials, who have all contributed to this plan, to guide and manage change and development to:

- support and promote a diverse social and economic population that includes a resident work force;
- preserve the traditions and character of the Rocky Mountain West and Wyoming, including ranching and through architectural design;
- promote economic sustenance that does not depend on population growth;
- set aside, for generations to come, scenic vistas and wildlife habitat;
- maintain and enhance environmental quality, including air and water quality;
- maintain outdoor recreation and adventure opportunities; and
- offer a spectrum of housing types, especially for resident workers.

The vision also includes the intent that development on private lands in Teton County be compatible with surrounding public land values and uses, including Grand Teton National Park, Yellowstone National Park, and Bridger-Teton National Forest, because all towns, neighborhoods and resorts in Teton County are integral to the Greater Yellowstone Ecosystem.

Fortunately, Teton County residents enjoy common values upon which they can build a future. This planning effort sought a "common ground" among several points of view. There is widespread commitment for protection of Teton County's natural resources, outdoor recreational opportunities, sense of community and small-town feeling and social diversity.

The Comprehensive Plan for Teton County needs to acknowledge and protect the benefits of growth while adopting reasonable limits. In an effort to create a "best-choice" future for our community and to design a regulatory system that serves this purpose, the benefits of growth must be balanced with the benefits of growth management.

The guiding principles shown below have been articulated to reconcile the benefits of growth with the benefits of growth management.

1. Teton County's wildlife and scenic resources are a local and national treasure, and, therefore, the community recognizes a stewardship responsibility for their protection. Future development in Teton County will take place in this context.
2. Teton County is a community first and a resort second. Social diversity is a defining characteristic of the community, and sufficient housing is seen as essential to retain that characteristic in the future. High-end residential and commercial development will not be permitted to dominate the community at the expense of affordable housing opportunities for permanent residents.
3. The intent of this Plan is to create conditions for a sustainable visitor-based economy not dependent upon growth, and an economy that reflects the unique small-town, Western commercial character of Jackson, and the outdoor recreational opportunities of Teton County as key components of the visitor experience.
4. As a community grounded in values of individualism, fairness and hospitality, the intent of this Plan is to provide property owners and local businesses with as much flexibility as possible in the use and development of their property. Local elected officials will be entrusted with discretionary decision-making power to protect public health, safety and welfare.

The Plan chapters which follow provide the means to achieve the vision and guiding principles through a detailed analysis of issues, establishment of goals and objectives, consideration of strategies and selection of appropriate actions. However, these chapters do not represent the culmination or end-point of the process. The term "planning process" defines the on-going or cyclical nature of planning. While certain aspects of the planning program have been formulated to the point that they are ready for implementation, others require continuing monitoring and analysis before they too are ripened.

The most significant areas in which the planning process will continue following adoption of this Plan are:

1. Definition of the fair share of affordable housing to be provided by new residential, commercial and resort development;
2. Specification of fees to address the impacts of development on parks and recreation, schools and roads;
3. Consideration of growth management techniques intended to insure balance among the residential, commercial and resort development sectors and to influence the rate of community change to avoid cycles of community "boom and bust";
4. Establishment of planning capacity guidelines, providing a range for each resort's ultimate development, within which each resort can develop its own master plan;
5. Formulation of historic preservation design guidelines;
6. Re-running the County's transportation model to determine the intermodal transportation improvements necessary to serve the vision expressed by this Comprehensive Plan.

This plan is intended to guide the inhabitants of Teton County, Wyoming, into the 21st century in a manner that honors Jackson Hole and Alta's heritage and setting, and endows future generations. The Plan also seeks to build on conditions existing in 1993.

Every development, public or private, no matter how large or how small, has the potential to affect community character; the question is how will community character be affected? Will the fourplex complement the neighborhood, or will it be out of scale with surrounding homes? What will a new commercial/office building do for the qualities that make up Wilson? How about a new hotel on Broadway or at Teton Village? The Town shop or the ice rink? What effect will they have? Will people feel the same about their community after projects like these are built?

Lands which have essentially no built environment directly associated with them are also a major character component in Teton County. Such areas include open ranchlands, which often constitute the foreground of the County's broad scenic vistas. They include river and stream corridors, wetlands, woodlands, buttes, and open meadows, all of which together support the County's abundant wildlife. A significant portion of these undeveloped lands are privately owned, i.e., not part of the 97% of Teton County's total land area which is controlled by federal, state, and local governmental agencies. Natural resource issues and strategies are examined from an environmental perspective in Chapter 4; they are, however, examined below with preservation of rural character in mind.

A fundamental objective of this Comprehensive Plan is to preserve rural character and enhance it where possible; to allow development, but to make sure that new development is consistent with rural character. Primarily, rural character is defined by large amounts of open space in relationship to the floor area and volume of structures. Therefore, preserving a rural character requires that very large amounts of open space be set aside as development occurs. Open space also results in the preservation of natural resources, wildlife habitat, and scenic vistas, if the regulations are so structured to protect these attributes.

Historically, it is ranchlands that provide the powerful statement for the image and character of the County; they provide some of the area's most popular and spectacular vistas, with grazing cattle and horses, haystacks and weathered barns dotting grassy meadows. Cattle drives and the few remaining horse-drawn hay sleds project images which connect residents and visitors with the western ranching heritage begun in the 1890's, when settlers brought their families to Jackson Hole by wagon to raise hay and cattle. Working ranches and dude ranches are the learning environments for participants in local summertime rodeos and along with holiday parades provide the inspiration for, and the authenticity of, the western character of downtown Jackson.

However, because of a harsh climate, transportation constraints, uncertainties of grazing leases and water rights, and a variety of other factors, ranching is at best a marginal business venture in Teton County. As ranches have been sold for development, agriculture has decreased significantly in its contribution to the local economy, to a current level of less than 2% of the County's gross annual product.

A strong second home market has caused residential property values to skyrocket, making it difficult for landowners to resist selling their land for development, particularly when federal estate taxes make it difficult to pass the ranch on to the next generation intact because taxes are based on development value rather than the use value of the land. Many families have little choice but to sell off at least some of their land to pay these taxes and retain ownership of the remainder. In order to preserve (and enhance) Teton County's rural and western character, a new land development regulation system sensitive to community character components must be structured.

Beyond the physical and socioeconomic components of the built environment, the key components of character in Teton County are natural features such as mountains, buttes, streams forest and wetlands, habitat for the area's abundant wildlife, and ranching and other agricultural pursuits, and scenic vistas. Therefore, regulations must protect scenic vistas and corridors, and set aside contiguous open space in quantities sufficient for wildlife and agriculture. Other means of support for the preservation of open space, rural character and the agricultural base can be derived from encouraging permanent protection of large tracts with flexible regulations for any minimal associated development. Nonregulatory participation and partnerships can further achieve protection of these resources. A particular challenge in creating such regulations, however, is the Wyoming Statute which allows 35 acre tracts to be created without Town or County review

Specialized foundation and drain systems can mitigate some of the impacts of development on wetlands by permitting water to filter back to the natural system.

Waterbodies, including perennial, intermittent and low intermittent streams, provide critical habitat and spawning areas for fish and other aquatic species, when their water quality is capable of supporting such activities. Perennial streams provide prime cutthroat trout spawning areas, while intermittent streams play a critical role in maintaining water quality in perennial streams. Waterbodies also provide habitat and water supply for other wildlife, including moose, elk and deer. Riparian communities, present at the transition between water- and land-based habitat, support a wide diversity of wildlife species which are influenced by, and respond to, the vegetation and plant diversity found at the water's edge. Minor and isolated disturbances, can be offset by permanent protection of adjacent large parcels. For example, where the wildlife, agricultural and scenic analyses performed as part of the design of the easement is acceptable, the stream setbacks may vary.

Inadequate setbacks of human activity from waterbodies or disturbance of stream bank vegetation allows runoff from roofs and paved surfaces to enter streams more rapidly, causing streambank erosion and inhibiting the pollution-filtering function of ground cover. Loss of streambank vegetation also reduces the value of these areas as habitat for land-based wildlife species.

Riverbottom (highly mesic) forests are part of the Snake River riparian zone which provide crucial winter habitat for moose, trumpeter swan and elk. The bald eagle uses the riparian corridor year round, for nesting and to forage, while great blue herons, raptor species and mule deer also use this resource area. The forest also contributes to water quality in the Snake River by stabilizing shorelines and filtering water flows. Bottomland forests are prized for residential development, commanding some of the highest prices per acre in the County.

Upland forests provide food and shelter for large mammals, including elk, deer, moose and bighorn sheep. While most of this type of forest occurs on public land, it can also be found in isolated pockets within upland shrub and grassland environments. Such lands are often steeply sloping and difficult to develop. Maintaining the forest cover here is critical to prevent erosion and to stabilize areas subject to minor avalanches.

Upland shrub-scrub grasslands are the dominant habitat on private lands. Mule deer, elk, pronghorn antelope, bison and bighorn sheep get much of their food from this environment during at least a portion of the year, with sheep, bison and antelope depending almost solely on this habitat. Coyotes, badgers and most raptors, including the bald eagle, find much of their prey in this environment. Disturbed grasslands are difficult to revegetate and, therefore, subject to erosion. Such lands have been declining in southern portions of Jackson Hole due to development and agriculture.

Scenic Resources

The scenic quality of an environment is established by various types of natural landscape spaces. In Teton County, scenic vistas tend to be both broad and deep, with features of beauty and interest in all parts of the vista. This means that the aesthetic quality of natural landscapes can be "borrowed" by viewers from many miles away, permitting the entire community to share a common visual experience. The ability to use this high-quality "borrowed space" is a key component of overall community character.

Throughout most of the County, there is a visual backdrop of uninterrupted butte tops, ridge lines, mountain sides and pastoral foregrounds, which are major contributors to the open feeling and rural character of the area. Were the skyline penetrated by large residential structures or the foreground cluttered with development, the scenic quality of the area would be diminished and would instead become a visual distraction.

While Teton County has literally thousands of locations where scenic views of one sort or another exist, certain specific vistas and scenic corridors are experienced millions of times per year by residents and visitors

alike, mostly from the county's major roadways. Because of this combination of high visual quality and the frequency with which they are experienced, these are the vistas and corridors which set the most powerful images of the community. Therefore, it is these types of vistas which are the most deserving of regulatory protection.

Many of the county's finest and most frequently experienced vistas involve ranchlands. Usually, pastures and hay meadows form the foreground to spectacular mountain panoramas. Ranchers have maintained and supported this aspect of rural Teton County for decades. This Plan and its implementing regulations provide the means to allow reasonable development of ranchlands for those ranch families who choose to maintain a working ranch, while, at the same time protecting scenic vistas and corridors and preserving rural character and wildlife habitat.

The County's scenic resources have long been recognized as having national value, as demonstrated by the creation and expansion of Grand Teton National Park and Bridger-Teton National Forest. However, the Park does not encompass all of the extraordinary scenic resources of the County, nor does it adequately protect the County-wide scenic values of mountain vistas and open space which are an essential component of community character.

Scenic resources protection was addressed in the 1978 Teton County Comprehensive Plan and Implementation Program, although never fully implemented due to limited funding. A 1988 study conducted by a citizens advisory group identified priority sites for scenic protection, generally along the County's major roadways. The formulation of the scenic resource elements of this Comprehensive Plan represent a continuation of these prior efforts.

Air Quality

Because Jackson Hole is a high-altitude valley almost entirely surrounded by mountains, it is particularly susceptible to air quality problems associated with winter temperature inversions. Under the influence of high atmospheric pressure, cold dense air is trapped near the valley floor by layers of warmer air. Also trapped are pollutants which would normally be dispersed by air movement. These pollutants include carbon monoxide, mostly from automobile emissions, dust particles, and woodsmoke.

From sampling performed in 1982 and 1983 by the Wyoming Department of Environmental Quality (DEQ) and testing done by the Environmental Protection Agency in 1991, it was found that over 85% of the carbon recovered from sampling filters was attributable to woodsmoke. On days when the area is under temperature inversion, smoke can be seen hanging like a brownish cloud over the valley floor. The height at which the cloud is suspended depends on atmospheric conditions. On a very cold day, smoke sometimes will hug the ground like a fog, rising as the air warms. Continued growth without mitigation measures will make violations more likely. In addition, the visual effects of woodsmoke haze detracts from the scenic quality of the County.

Water Quality

In Teton County, the quality of both groundwater and surface water are growth and development issues that must be addressed in this Plan. The major threat to groundwater supplies is pollution from individual septic systems. Teton County has undertaken an extensive groundwater quality study and monitoring program on the west bank of the Snake River. Provision of centralized wastewater treatment facilities will be a critical issue in the future development of that area.

Surface water quality is generally affected by point source discharges and urban street runoff, which has both point and non-point sources. There is very little urban development which could impact the County's rivers. The Town of Jackson wastewater treatment plant discharges to Flat Creek approximately one mile from its confluence with the Snake River. Most of the plant effluent, however, is discharged to infiltration/percolation beds following treatment, and never reaches the creek or the river directly.

Rural district is more valuable than the same amount of identical habitat in Auto Urban Residential (AR), and therefore, a greater percentage of the resource must be protected in the R district. This can be achieved by encouraging the permanent protection of large tracts of open space in the Rural district through flexibility in County development regulations. Regulations should involve flexibility in development of sensitive areas where only minimum density is proposed as part of a significant protection package. Nonregulatory incentives may involve partnerships with land conservation and other private organizations. In addition, the County should explore other ways of encouraging significant protection.

Another effective regulatory strategy for preserving specific, finite environmental features and important wildlife components to certain wildlife species is to require that structures, terrain and vegetative disturbance, and certain other types of human activities be kept a specific distance away. For example, because bald eagles are easily disturbed by humans during certain times of the breeding season, the Biota report recommends a primary nest zone of 660 feet in radius around all active and inactive nests, within which all human activity should be discouraged or prohibited entirely. The report also recommends a secondary zone beyond the primary zone, "where sufficient data exist to define bald eagle breeding territories and important habitat components within these territories." To ensure the effectiveness of the regulatory approach, this Plan recommends eagle nest buffers of 1,320 feet, to account for both the primary and secondary zone recommendations in the report.

Other resource features, such as peregrine falcon nests, butte tops and ridge lines, water bodies, and wetlands, can also be best protected by specified setback requirements. Anyone proposing to encroach upon these established setbacks would be placed in the situation of having to legally justify relief from the standard. Should Town and County officials grant relief, it should be based on mitigation of any potentially adverse environmental consequences as conditions of their decision.

Scenic Resources

Similar to wildlife resources, scenic vistas and scenic corridors have been mapped as a "Scenic Resources Overlay" (SRO) on the Town and County character district maps.

→ See attached map.

Scenic Vistas

Scenic vistas shown on the maps include those high quality mountain settings viewed most frequently by residents and visitors from roads within the County. The critical components of the vista are the foreground area, which is most often an irrigated pasture, but may also be natural, open lands, and the background, most notably the ridgeline or a butte top and the mountains. The intermediate portion of the vista, which is typically a hillside or butte in front of a mountain backdrop, is considered a secondary visual priority, provided structures are kept off of the butte top or ridge, or properly screened where there is no siting alternative to the ridge top (See Figure 4.1).

The designated vistas are often quite broad and deep, since the valley floor can stretch for several thousand feet back from a road, while the mountains can sit as far back as six to eight miles. The mapped overlay recognizes this depth, by excluding areas in both the fore- and background whose development will not affect the visual quality of the vista.

The recommended approach to protecting scenic vistas is to permit development, but to keep it from detracting from the visual quality of the foreground and to ensure that structures do not interrupt the skyline. It is unlikely that any approach can specify the single most effective way to preserve the visual qualities of every vista in Teton County. For example, in some cases, it may prove best to cluster development out of the foreground or in the least visually obtrusive portion(s) of the site. In some areas of the County, however, existing ranch buildings are found in very prominent locations, near roadways. Repetition of this clustered development pattern, together with architectural and landscaping standards which require new development to contain features similar to those of traditional ranch development, can also be an effective approach, particularly when the need to preserve critical wildlife habitat forces development into the foreground.

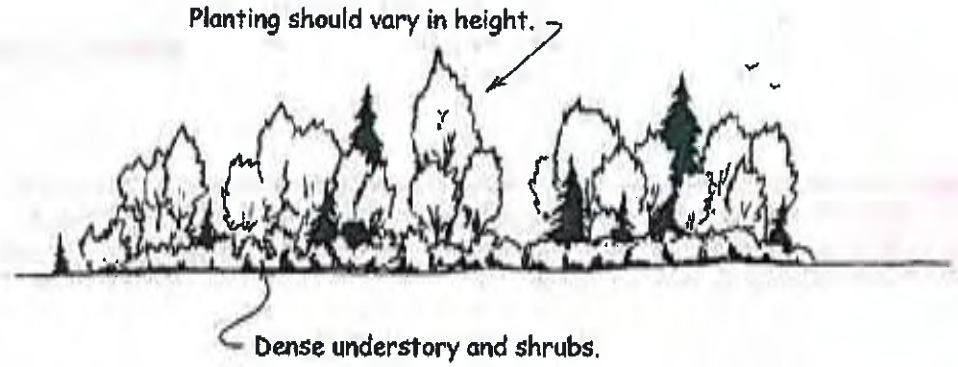
of the front setback line of existing structures. Extensive landscaping should also be required, to screen parking areas and to soften structural mass.

Conservation and Scenic Easements

As stated earlier, community character and natural resource preservation are overlapping issues. In Teton County, natural resources are a **major** component of community character. The acquisition of conservation and scenic easements is an effective programmatic strategy for accomplishing natural resource protection and preservation of community character. The Jackson Hole Land Trust, Teton County Scenic Preserve Trust, and the Nature Conservancy, held conservation easements or fee simple title to approximately 7,500 acres of land as of August, 1992.

The conservation and scenic easement is a legal agreement between the landowner and grantee (the land trusts) to restrict and to specify the type and amount of development that takes place on the property. The easement may be purchased with funds raised by the various trusts, or easements may be donated. The benefits of donating easements will vary, depending upon the personal financial needs of the landowner. Generally, benefits can be structured for estate planning and inheritance tax purposes, income tax or just to carry out the desires of the owner as to the disposition of the property. The easement too can be structured in a variety of ways. Some easements allow no improvements at all while others may specify the continuation of an agricultural use, a recreational use, or even limited residential development.

Figure 4.3
Screened and Filtered View of Foreground Development



Uses of Open Space

Natural resources can be preserved effectively and in perpetuity in dedicated open space which results from clustering. Clustering is described as a development option in Chapter 3, Community Character. To many people, clustering may have connotations of attached housing. Indeed, some types of semi-attached patio homes are often referred to as "cluster homes." Actually, clustering is a viable development option for almost any residential product type from apartments to single-family homes on lots of three to five acres or more and need not require the units to be attached, just that they be located relatively close together.

When land is designated as open space in conjunction with a clustered or planned development, the purpose for designating that land as open space should be clearly defined, so that uses do not occur which are incompatible with the resource protection purpose. This Plan recommends that open space lands be classified

as serving one of the following three purposes, considering whether the land has been designated NRO or SRO:

1. Wildlife habitat, for which only limited uses shall be permitted, as determined by a wildlife assessment compiled for the property. The limited uses may need to be restricted during critical annual migration or production periods.

2. Scenic and agricultural, for which only agricultural activities and passive open space shall be permitted. Access to these areas would be limited, to protect agricultural operations, but could be permitted for passive recreation and pathways, if compatible with the scenic value and agricultural activities.

3. Public access, for which active recreational activities and uses and access shall be permitted.

Air Quality

Automobiles, industry, and power generation are major sources of air pollution. Fuel burning is a major source of pollution that severely impacts air quality on local, national and global levels. In Teton County, temperature inversions trap pollutants in the valley, resulting in localized air quality problems. The two principal local air pollutants are automobile exhaust and wood smoke.

Two strategies are considered for dealing with automobile pollution. The first is to maintain a high level of service on the roadway system. The second is to encourage alternative modes of transportation, such as bicycling, walking, and mass transit, reducing total traffic and increasing service levels.

The majority of single-family homes in Teton County use wood in some form as a primary or secondary heat source. Many wood burning systems are inefficient, generate large amounts of pollution and waste energy. The Jackson/Teton County Woodsmoke Committee was reorganized in 1991 and charged with addressing air quality and energy efficiency. The committee recommended ordinance revisions, which were adopted by both the town and county requiring that any newly installed wood stoves must meet EPA Phase II requirements for emissions. In addition, the town and county have enacted a "rebate" program whereby residents are paid $300 for taking a pre-Phase II stove out of service. Teton County has gone one step farther, and now regulates the number of solid fuel burning devices (SFBDs) allowed in a given type of structure.

Water Quality

Two strategies are available for protecting groundwater. The first is to avoid introducing pollutants into areas where the land and the groundwater reservoir are directly connected. Aquifer recharge areas are places where surface water quickly reaches groundwater. Similarly, locations where groundwater is close to the surface are unsuited for waste disposal, solid or liquid. Discharging waste directly into groundwater is risky and should be avoided. Groundwater is not capable of cleansing itself of chemical contaminants, organic or inorganic. Thus, any pollutant introduced, remains.

With surface water, the ideal approach is to eliminate or trap most pollutants before they enter the water system. This means pollution should be dealt with at the source through direct treatment or through what is often termed "best management practices." BMPs usually entail relatively simple, common sense measures such as retaining the critical "first flush" of runoff from paved surfaces, and active revegetation to prevent erosion. All drainage plans and basin studies should have water quality as a prime objective.

Natural Hazards

The most effective strategy for keeping development out of natural hazard areas is to provide information in the form of area-wide mapping which "red-flags" potential problem areas to property owners, government officials and neighbors before development is planned. Maps of floodplains, land stability, soil suitability, and faults are available from a variety of public sources. Jackson and Teton County should keep an inventory of these maps and make them available for use by the general public.

In most cases, these maps do not contain adequate detail to guide lot-by-lot development. They are useful, however, to indicate when, and under what circumstances, a more detailed hazards investigation may be necessary. A detailed investigation is required of any development proposed in a known natural hazard area. This investigation should describe mitigation measures for each type of hazard identified. The main focus of regulations, however, should be to direct development away from hazardous areas to the maximum extent possible.

Restoration

Closely related to the preservation of natural resources is enhancement of natural resources through the restoration of areas impacted by intense development. Gravel pits and cuts and fills for structures and roadways are examples of areas in need of restoration. Generally, reclamation of such areas should be the responsibility of the owner and should be a condition of approval of the permit for such intense uses. Where this is not possible, because the pit is no longer operating and the operator was not required to reclaim the site as a condition of approval, then the public sector may need to step in and fill this role.

The single most prominent natural feature in need of immediate attention, however, is Flat Creek as it flows through the Town of Jackson. From the point where the Creek flows out of the National Elk Refuge until it begins its meander through the Jackson Hole Hereford Ranch, development in Town has turned its back on the waterway. The quality of water has been degraded by silt and by run-off from paved surfaces. The creek bed and banks are often strewn with trash and debris. Its floodplain has been altered and/or encroached upon, and illegal fill in some places runs to the water's edge. Access is often cut off by development. Development regulations in the Town have, for the most part, proven inadequate to prevent the worsening of these problems, let alone to reverse them.

A restored and accessible Flat Creek would be a visual and recreational amenity to the entire community. This Plan recommends that the Flat Creek corridor be designated as a special enhancement area, and that a restoration plan be developed for the corridor. At a minimum, this plan shall address water quality; fishery enhancement; accessibility; acquisition of easements or land where needed; removal of encroaching structures, parking and storage areas; biological potential for waterfowl and mammals; suitability for non-motorized trail; and linear park opportunities.

Restoration is also recommended at the impacted industrial areas along South Highway 89. Restoration of these areas would include creation of more appropriate highway setbacks as these properties re-develop, with vastly increased landscaping to screen the use from view.

As a general restoration policy, it is recommended that remedial landscaping within the County use native species, planted to extend or enhance natural vegetation patterns, while landscaping planted to screen development in Town should be appropriate to its function.

Access

Regulations offer perhaps the most direct of strategies to improve public access to public lands and natural resources. Easements providing public access to public lands could be required as park and recreation exactions and/or as conditions of approval of a planned or clustered development. Vehicular access (where appropriate) as well as trail and pathway improvements could be acquired by the same means.

There must also be coordination among the Teton County Transportation Master Plan, the Town of Jackson Master Plan for Street Improvements, the Teton County Pathways Plan, and the actual trails and roadway systems on public land. Where public access is deemed critical, an easement could be purchased or accepted as a donation. Many property owners are concerned about legal liability when granting access across their property. However, information distributed through the American Hiking Society and the Trails Coalition indicates that the perception of liability is much greater than the reality. The Wyoming Recreational Use statutes provide significant protection for landowners who grant the right of access.

D. RECOMMENDATIONS

Pursuant to the goals and objectives of this chapter, the following actions are recommended:

Regulatory Actions

1. Adopt, as an overlay to the character district map, a composite depiction of critical wildlife habitat and migration corridors. Adopt regulations which seek to limit development in these areas to the maximum extent possible.
2. Adopt, as an overlay to the character district map, a composite map of scenic vistas and scenic corridors. Adopt flexible regulations to preserve the visual qualities of these areas, while still allowing reasonable levels of development.
3. Structure regulations which set required protection levels, setbacks, and/or other protection mechanisms for significant natural resources and features.
4. To further objectives of natural resource protection and community character, create a system of incentives and requirements for clustered development in appropriate areas.
5. Require that all drainage plans and basin studies address surface water quality as a high priority objective.
6. To the maximum extent possible, require that development not occur in natural hazard areas. When development does occur in such areas, require the appropriate detailed investigations and effective mitigation measures for all hazards identified.
7. Require public access to public lands and other natural resources (Snake River, Flat Creek, etc.) in conjunction with exactions, or as conditions of record, whenever possible.

Nonregulatory Actions

1. Continue to support the efforts of the Jackson Hole Land Trust, Nature Conservancy, and the Teton County Scenic Preserve Trust to acquire land and easements for resource protection and community character considerations. Continue to explore funding sources for these organizations.
2. Continue to monitor air and water quality for the purpose of:
   a. assessing the effectiveness of current regulations and programs,
   b. determining the need for future action.
3. Regularly update all natural and scenic resource inventories, to assess the incremental impacts of development on the resource and as a basis for regulatory amendments, as necessary. Create a computerized geographic data base (Geographic Information System, or GIS) to facilitate the regular update of these inventories and to simplify use of this data in the process of reviewing land development applications.
4. Inventory maps and other information on natural hazards, making this information available to the public.
5. Identify key access points to public land and natural resources on Town and County transportation plans, and on County pathways plan.
6. Seek cooperation of landowners to improve accessibility to public lands.
7. Designate portions of Flat Creek within or adjacent to the Town of Jackson as a special enhancement area, and initiate a plan for its restoration.

Table 5.2 Affordable Housing by Product Type		
CHARACTER	**PRODUCTS**	**RESIDENT**
Urban & Auto-Urban	**TYPE #1 - PRIMARILY RENTAL** Dormitories Single Room Occupancy Units Efficiency Apartments One-Bedroom Apartments Accessory Units	Seasonal/Service Sector Employees
Primarily Auto-Urban	**TYPE #2 - RENTAL OR PURCHASE** Two & Three Bedroom Apartments Duplex Triplex Fourplex Stacked Flats Townhomes Mobile Homes	Service & Permanent/Professional Employees
Primarily Auto-Urban & Suburban	**TYPE #3 - PRIMARILY PURCHASE** Single-Family Detached Homes Townhomes Condominiums	Service & Permanent/Professional Employees

Affordable Housing Locations

Identifying suitable locations for affordable housing is an important planning strategy. Affordable housing is often met with neighborhood opposition once a specific site is proposed. While a character-based plan and regulations can offer a wide variety of housing opportunities, not every type is appropriate for every area of Teton County. Table 5.3 is an assessment of nine areas of the Town and County, and their possibilities for providing the three affordable housing product types.

Centralized water supply or sewage treatment systems, or both, are generally needed for development of Suburban or higher densities. Both of these services are available in and near the Town of Jackson. The Wilson and Teton Village areas have potential access to one or both of these services. Thus, other affordable housing locations must either have access to water and/or sewer services, or the appropriate environmental conditions must be present. A potential water supply in the vicinity that can be affordably developed and the capacity of the soils to handle closely spaced septic systems, are essential.

Other locational criteria are close proximity, or easy access, to shopping areas, public transportation nodes, and other services.

TABLE 5.3
Assessment of Affordable Housing Potential by Location

LOCATION	PRODUCT TYPE #1	PRODUCT TYPE #2	PRODUCT TYPE #3
East Jackson	As accessory units only. No multifamily complexes. Poor access and lack of commercial services.	Probably No	Primarily lot by-lot infill. No major subdivisions.
West Jackson	Vacant land suitable for use, good access, transit, commercial services. Opportunity for accessory units.	Yes	Yes, but most new units will be Type #1 & #2.
Cottonwood Park/Gregory Lane	Yes	Yes	Yes
South Park	Probably No	Northern part near High School Road only.	Only at Suburban densities or lower, and only in clustered developments.
Wilson	As accessory units only. No multifamily complexes.	Probably No	Auto-urban or lower densities, or in clustered developments.
Resorts	Yes, some on-site employee housing should be required.	Yes, subject to character considerations and commercial services.	No
Downtown	Yes. Opportunities for accessory units.	Probably No	No
Alta	As accessory units only. No multifamily complexes. Poor access and lack of commercial services.	No	No
Hoback Junction	Yes, mainly as accessory units.	Yes, if adequate utility services can be provided.	

CHAPTER 10

AGRICULTURAL RESOURCES

A. ISSUES

Despite rapid growth and subdivision, Jackson Hole is still ranching country, as it has been since the valley homesteading began a century ago. Ranching activity is crucial to the local tourist economy and enhances the experience of the visitor to federal lands. Ranching provides a colorful, interesting foreground to the magnificent mountain views. When one thinks of scenic vistas, one thinks of the view across the Walton Ranch, or Spring Gulch or out across the Porter Estate or Snake River Ranch. Scenery in the southern valley of Jackson Hole means ranching in the foreground and mountains in the background. It creates that informal, western atmosphere that separates Jackson Hole from other resorts and gives a context for the popular Jackson Hole Rodeo and County Fair. Even though Jackson Hole's ranches are highly visible to the visiting (and resident) population, even the less visible ones add to the overall feel of the valley and its community.

Ranching in Jackson Hole serves another critical function. It provides large blocks of open space for wildlife. In the winter, the most critical time for the valley's large mammals, the animals take refuge amid the willows, along the hillsides and in the open meadows of Jackson Hole's ranches. The livestock is concentrated in feeding areas. In the spring, a critical time for nesting eagles, for example, most of the cattle are still concentrated or utilizing nesting areas in the most minimal way.

During the rest of the year, the wide open spaces of undisturbed ground, without roads, without buildings, are a refuge for species large and small. Ranching minimizes human use which is the greatest conflict for wildlife by preventing poaching (of both fish and mammals) and trespassing which creates disturbances to sensitive species such as eagles, river otter, and elk; preventing de-watering that would occur if water rights are abandoned (water must be beneficially used, or the rights are lost), by managing historic water ways or by managing vegetation to prevent clogging of the streams or ditches, culverts in nearby subdivisions. Wildlife habitat can be degraded if vegetation management is not used, for example, to periodically burn willow stands, or to fence off tree stands (particularly aspen stands) from over-use by cattle and wildlife alike. The levees on the Snake River contributed to de-watering of riparian zones behind levees. Irrigation for ranching is a primary activity that continues to distribute river water to these riparian zones and mimics the natural flooding that occurred before the levee construction.

Jackson Hole ranchers run commercial beef cattle. Most ranches are traditional cow-calf or cow-calf-yearling operations where their cows are kept year-round, and the calves are sold each fall or held over one year and sold the following fall as yearlings. Calves are born on the ranch from March to June, then the cow-calf pairs are driven to summer range, usually on grazing leases in the Bridger-Teton National Forest. While the cattle are on summer range, hay is raised on irrigated fields on the ranch, then cut and stacked in late summer. Through the winter the cows are kept on the ranch and fed hay.

In addition to the cow-calf operations, some Jackson Hole ranchers have yearling steer operations. In this situation, the ranch buys or takes on yearling steers from outside the valley in the spring to pasture for the summer. The steers are then sold in the fall. In addition to cattle ranching, some ranches grow hay or pasture for horses.

Because of the availability of water, good summer range and good pasture land, Jackson Hole ranches are typically smaller in acreage than cattle ranches in much of the west. Most of the ranching activities--haying, grazing, winter feeding, cattle drives--are visible from the valley's roads and are still an integral part of the landscape and atmosphere of Jackson Hole.