

ARGALI SHEEP OVIS AMMON TROPHY HUNTING IN MONGOLIA

S. AMGALANBAATAR^{1,2}, R. P. READING^{2,3,*}, B. LHAGVASUREN¹ & N. BATSUKH⁴

¹ Institute of Biology, Mongolian Academy of Sciences, Ulaanbaatar - 51, Mongolia. E-mail: ecolab@magicnet.mn

² Argali Wildlife Research Center, Ulaanbaatar, Mongolia. E-mail: moncocoal@magicnet.mn

³ Denver Zoological Foundation, 2900 E. 23rd Ave., Denver, CO 80205 USA

⁴ World Wide Fund for Nature - Mongolia Program Office, Ulaanbaatar, Mongolia

* Author to whom correspondence should be directed. E-mail: zooresearch@denverzoo.org

ABSTRACT.— Argali sheep *Ovis ammon* in Mongolia are highly sought by foreign hunters because of their impressive size and long, spiraling horns. To be sustainable, hunting programs must be well managed and have the support of local communities. Argali numbers in Mongolia seems to be declining rapidly due primarily to poaching and competition with domestic livestock, which have increased over the past decade. Laws, regulations, and revenue disbursement associated with argali trophy hunting in Mongolia are described. Argali trophy hunting is lucrative and the number of argali licenses and hunting organizations has been increasing over the past decade. Controversy surrounds the program. This controversy has been manifested in growing local opposition and accusations of corruption by the media. To help address this controversy, we suggest a reform of argali trophy hunting management in Mongolia that will better conserve the argali, as well as enjoy enduring public support. A reformed trophy hunting program should be characterized by 1) openness and transparency, 2) external review and oversight, 3) a mix of top-down and bottom-up authority that enjoys local support, and 4) active and adaptive argali conservation and management using funds generated by trophy hunters.

RÉSUMÉ.— L'argali *Ovis ammon* de Mongolie est un trophée très apprécié par les chasseurs étrangers du fait de ses grandes cornes spiralées. La gestion de la chasse, si on la veut soutenable, doit être bien planifiée et doit faire participer les populations locales. Le nombre d'argalis en Mongolie a beaucoup baissé ces dernières années surtout du fait du braconnage et de la compétition avec les animaux domestiques, ces derniers ayant augmenté au cours de la dernière décennie. Nous étudions les lois, les réglementations et les revenus associés à la chasse en Mongolie. Cette chasse au trophée se montre lucrative et le nombre de licences et d'associations de chasseurs a

augmenté significativement ces dernières années. Cependant, le programme a soulevé une controverse. D'abord, l'opposition locale a augmenté, puis les médias ont parlé de corruption. Pour sortir de cette situation, nous suggérons la réforme de cette gestion de la chasse-trophée d'argali en Mongolie, de façon à conserver l'animal et à obtenir un appui public de longue durée. Cette réforme doit être basée sur les points suivants: 1) ouverture et transparence; 2) révision externe et surveillance; 3) autorité mixte de haut en bas et de bas en haut avec l'accord local, et 4) conservation active et adaptative de l'argali, en utilisant pour la gestion les fonds générés par la chasse au trophée.

RESUMEN.— En Mongolia el argali (*Ovis ammon*) es un trofeo altamente cotizado por cazadores extranjeros debido a su impresionante tamaño y a sus largos cuernos espirales. Para que este recurso sea sostenible los planes de caza deben estar bien dirigidos y contar con el apoyo de la población local. Su número en Mongolia parece declinar rápidamente debido principalmente al furtivismo y a la competencia con el ganado, que ha aumentado durante la pasada década. Se describen las leyes, regulaciones y las ganancias obtenidas asociadas a la caza del argali en Mongolia. La caza del argali es lucrativa y el número de licencias de caza y organizaciones de cazadores se ha incrementado durante la pasada década. La controversia que rodea el plan de caza se ha manifestado en una creciente oposición local y en acusaciones de corrupción por parte de los medios de comunicación. Como salida a esta situación, se propone el replanteamiento de la gestión de la caza de trofeo del argali en Mongolia, de forma que mejore su conservación y que, al mismo tiempo, disfrute de un apoyo popular duradero. El plan de caza de trofeo resultante debe estar caracterizado por: 1) accesibilidad y transparencia, 2) revisión y supervisión externa, 3) una autoridad representativa de los sectores implicados que cuente con el apoyo local y 4) uso de fondos generados por la caza de trofeo que financien una gestión y conservación dinámica del argali.

1. Introduction

The Mongolian Hunting Law of 2000 permits trophy hunting of several species, including some species considered "rare" (a protected classification) under the Law on Fauna of 2000, such as Siberian ibex *Capra sibirica*, wild boar *Sus scrofa*, elk *Cervus elaphus*, goitered gazelle *Gazella subgutturosa*, and argali *Ovis ammon* (WINGARD, 2001; HOFER, 2002). Many of these species are greatly sought by foreign hunters because of their impressive size or rarity (DES CLERS, 1985; PEER, 1996). Arguably the species most prized by trophy hunters in Mongolia is the argali sheep, and particularly the Altai argali subspecies *O. a. ammon*. Trophy hunters prize argali rams because of their impressive size and long, spiraling horns. Altai argali grow to be the largest mountain sheep in the world, with some males weighing over 200 kg and supporting horns stretching to over 165 cm long (VALDEZ, 1982; SCHALLER, 1998; AMGALANBAATAR & READING, 2000). Mongolia's

Gobi argali *O. a. darwini* are substantially smaller, but also impressive and highly sought by hunters.

Argali in Mongolia are listed as a threatened species by the Mongolian and U. S. governments, as well as Vulnerable (VU A2cde) by the World Conservation Union (IUCN) and under Appendix II of the Convention on the International Trade in Endangered Species (Nowak, 1993; WCMC, 1996; SHIIREVDAMBA *et al.*, 1997; HILTON-TAYLOR, 2000). Currently, two subspecies of argali sheep, the Gobi and the Altai, are recognized as inhabiting Mongolia (MALLON *et al.*, 1997), although these designations have been contentious (TSALKIN, 1951; ZHIRNOV & ILYINSKY, 1986; GEIST, 1991). Recent genetic studies suggest that all argali in Mongolia may represent a single, polytypic subspecies (TSERENBATAA, 2003). Argali in Mongolia inhabit the cold, arid grasslands of mountains, steppe-covered valleys, and areas with rocky outcrops, primarily in the northwestern and western Altai Mountains, the central Khangai Mountains, the Trans-Altai Mountains, and the mountain massifs and rocky outcrops of the Gobi Desert (MALLON *et al.*, 1997; AMGALANBAATAR & READING, 2000). A few very small and widely scattered populations exist elsewhere. Argali have relatively long, thin legs and compact bodies built for running speed (AMGALANBAATAR & READING, 2000). They therefore prefer rolling hills, plateaus, and gentle slopes over more rugged, mountainous terrain (READING *et al.*, 1998; SCHALLER, 1998).

To be sustainable, any formal hunting program must be well managed and the population being harvested must be monitored, managed, and conserved (WEGGE, 1997; SHACKLETON, 2001). Sustainability also requires developing support among the local communities in regions that support harvestable populations of animals (HARRIS, 1995; LEWIS & ALPERT, 1997; HARRIS & PLETSCHER, 2002). With trophy hunting that usually means making sure that at least some of profits from exploitation benefit local people (WEGGE, 1997; HARRIS & PLETSCHER, 2002; HOFER, 2002). Ideally, money generated from license fees should go directly to local communities and pay for research, monitoring, and management of the target populations (LEWIS & ALPERT, 1997; WEGGE, 1997; SHACKLETON, 2001). Skepticism remains among many as to whether or not trophy hunting, or sustainable use of natural resources in general, can actually benefit conservation (FREESE, 1997; PEER, 1996; SCHALLER, 1998; HOFER, 2002).

In this paper, an assessment on the past and present trophy hunting of argali sheep in Mongolia is presented. In doing so, the current situation or context of argali trophy hunting is also commented, together with a discussion of the controversies, and some recommendations for improving the situation.

2. Context

The argali population in Mongolia seems to be declining due primarily to poaching and competition with domestic sheep and goats, whose numbers have increased over the past decade. At the same time, argali trophy hunting has also been increasing.

Argali Sheep: Status and Threats

The population of argali sheep in Mongolia appears to be declining. Official government figures from Mongolia's Scientific Authority (the Mongolian Academy of Sciences) estimated 50,000 argali in 1975, 60,000 animals in 1985, but only 13-15,000 in 2001 (BOLD *et al.*, 1975; General & Experimental Biological Institute, 1986; Institute of Biology, 2001) (Figure 1). The estimated area inhabited by argali declined from about 264,000 km² in 1985 to about 48,000 km² in 2001 (General & Experimental Biological Institute, 1986; Institute of Biology, 2001). Throughout the country, the argali distribution is becoming increasingly fragmented (Figure 2) (Institute of Biology, 2001).

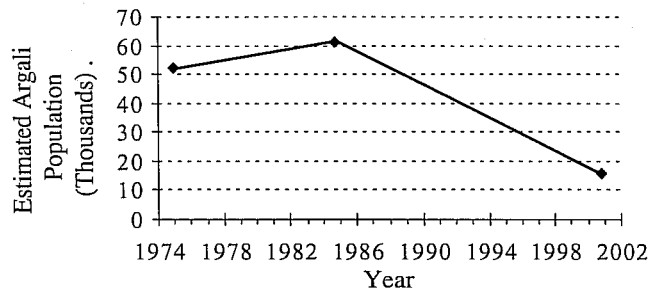


Figure 1. Argali *Ovis ammon* population estimates for Mongolia in 1975, 1985, and 2001. Estimates made by the Institute of Biology of Mongolian Academy of Sciences (the Scientific Authority for Mongolia) (Institute of Biology 2001).

Other, earlier estimates of argali numbers vary widely and are difficult to compare with official numbers, especially given that most authors provided no method of assessment. The Mongolian Hunter's Association suggested that 40,000 argali inhabited Mongolia in 1970 (AMGALANBAATAR, 1993). Alternatively, in 1976 Shanyavskii (1976) estimated a population of 10-12,000 animals. GRUZDEV & SUKHBAT (1982) believed that 12,000 argali inhabited Mongolia in the early 1980s, but just a few years later they estimated a popula-

tion of 18-20,000 individuals (GRUZDEV *et al.*, 1985). Finally, LUSHCHEKINA (1994: 26) suggests that "no more than 20,000" argali existed in Mongolia in 1994. Unfortunately, frequent, long-term monitoring using standardized methods has been lacking, precluding our ability to be confident in the exact population size. And aside from Mongolia's Scientific Authority, only LUSHCHEKINA (1994) provided a basis for her estimate. But because Scientific Authority used roughly comparable methods and many of the same personnel over time, we believe that the rapid, downward trend they identified is likely to be correct. In addition, we have noted the absence of argali from large portions of their former habitats, especially in western Mongolia. Alternatively, some populations in eastern Mongolia and the Gobi are faring well and expanding.

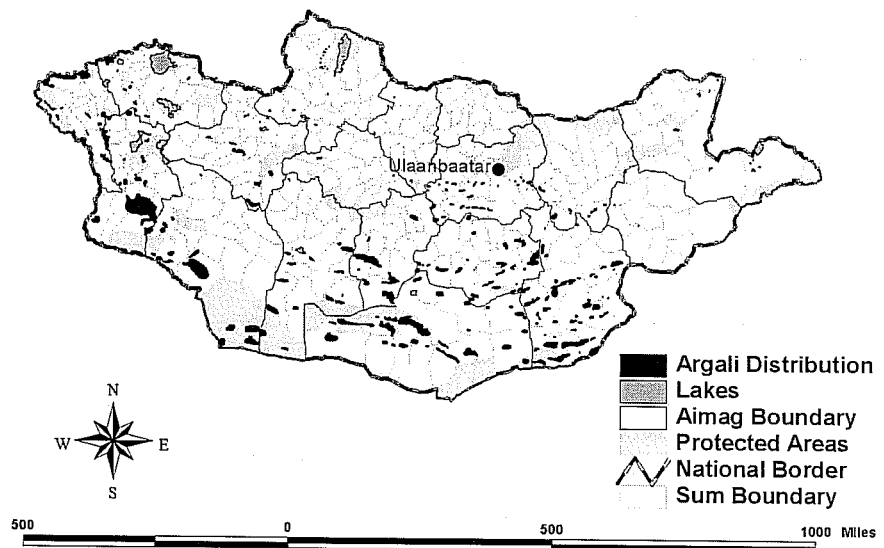


Figure 2. Distribution of Argali in Mongolia, 2001 (Institute of Biology, Unpubl. Data).

The situation is particularly alarming in western Mongolia (SCHUERHOLZ, 2001). Surveys and interviews with local people in 2001 suggest that argali have been locally check from 35 of 79 *Soums* (or counties) they formerly inhabited (a 44% decline) in the 8 western-most *Aimags* (or provinces; namely Arkhangai, Bayan-Olgii, Bayankhongor, Gobi-Altai, Khovd, Khovsgol, Uvs, and Zavkhan) (Figures 2 and 3) (BOLD *et al.*, 1975; Institute of Biology, 2001). Argali appear to be extirpated from one *Aimag*, Arkhangai. In contrast, in eastern and southern Mongolia, argali have re-colonized habitat from which they were extirpated last

century. In 2001, argali inhabited 64 *Soums* in the 8 eastern *Aimags* (DORNOGOBI, DUNDGOBI, GOBI-SUMBER, KHENTII, OMNOGOBI, OVORKHANGAI, SUKHBAATAR, & TOV), up from a mere 29 *Soums* in 1975 (Figures 2 and 3). However, some of this increase is likely due to more expansive searches for argali in recent years and the population estimates for these eastern *Aimags* show a decline from a little over 17,000 argali in 1975 to around 8,500 argali in 2001. As a result of these changes, argali distribution has changed dramatically in recent years. For example, in 1975, about 66% of the argali population lived in the 7 eastern *Aimags* of the species' range, but by 2001, that number had declined to about 46% (BOLD *et al.*, 1975; Institute of Biology, 2001).

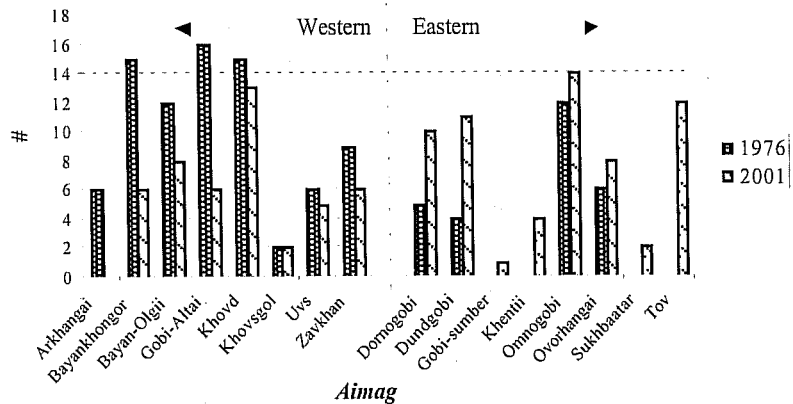


Figure 3. Number of Soums (or Counties) Supporting Populations of Argali (*Ovis ammon*) in Mongolia in 1975 and 2001. Note the decline in western Aimags (or provinces), but increase in eastern Aimags.

The decline of argali is likely the result of several factors; however, only believe that the two most important causes of decline are competition with livestock and poaching. These causes of decline have been cited for years in Mongolia (DES CLERS, 1985; MALLON *et al.*, 1997).

Argali undoubtedly suffer from competition with livestock, particularly domestic sheep and goats, for limited forage and water (DES CLERS, 1985; MALLON *et al.*, 1997; AMGALANBAATAR & READING, 2000; SCHUERHOLZ, 2001). Livestock numbers in Mongolia increased dramatically after the fall of communism, but especially after 1993 when most herds were privatized (Figure 4) (SHAGDARSUREN, 1999; AMGALANBAATAR & READING, 2000). The total number of livestock in Mongolia increased from 24.7 million animals in 1989 to 32.9 million in 1998, or an increase of 33.2%

(BAJIKHUUN *et al.*, 1998, 1999). Much of this increase can be attributed to increasing numbers of cashmere goats (Figure 4), which produce highly marketable wool. Goat numbers have grown from 4.96 million animals in 1989 to 11.06 million animals in 1998, or a 123% increase (BAJIKHUUN *et al.*, 1998, 1999). This has resulted in substantial degradation of pasturelands throughout large portions of the country (SCHUERHOLZ, 2001; FINCH, 2002). In addition, as the number of livestock increases, herders move their animals into more marginal lands that were traditionally little grazed, often displacing wild ungulates in the process (LUSHCHEKINA, 1994; MALLON *et al.*, 1997; AMGALANBAATAR & READING, 2000; SCHUERHOLZ, 2001). The western provinces of Mongolia have been particularly affected and even many protected areas now suffer from over-grazing (READING *et al.*, 1998; AMGALANBAATAR & READING, 2000; UNDP, 2000).

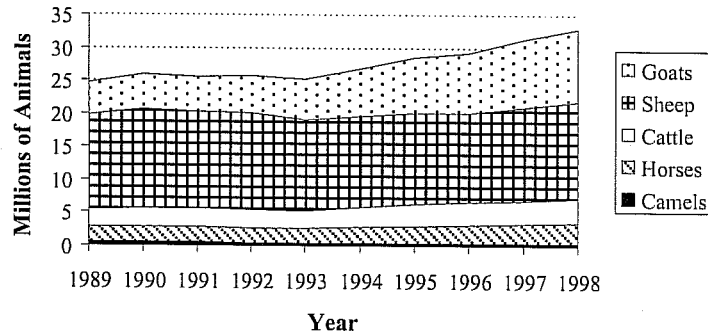


Figure 4. Number of livestock in Mongolia, 1989-1998. (Source: BAJIKHUUN *et al.* 1998, 1999).

Poaching is another major and growing cause of argali decline in Mongolia (DES CLERS, 1985; MALLON *et al.*, 1997; AMGALANBAATAR & READING, 2000). Although the magnitude of poaching is difficult to gauge, the indirect evidence is substantial. During the course of our field survey over the past 7 years, we have encountered poachers about once per year. In addition, many of the local nomadic pastoralists with whom we spoke, especially in western Mongolia, openly admitted to poaching argali sheep. They stated that the threat of getting caught was very low. And indeed, there are few rangers or other nature conservation officers in Mongolia, usually only one per *Soum* outside of protected areas, and most are unarmed, poorly trained, and only have enough money to go on patrol once a month or so (SCHUERHOLZ, 2001). Official figures for poaching are low. In the last 10

years only 13 people have been apprehended for killing 15 argali (Ministry for Nature and Environment, Unpubl. Data), but we believe that reflects a lack of enforcement rather than a lack of poaching. In several areas that formerly supported relatively healthy argali populations, local people suggest that argali poaching has increased in the past couple of years because Chinese traders have begun offering money for argali skulls.

Other threats to Mongolia include habitat degradation due to off-road vehicle use and mining operations. Trophy hunting poses less of a threat, at least given the relatively low recent quotas, but could affect local populations if not well managed. Removal of all trophy sized males from a population or an excessive amount of activity associated with trophy hunting could negatively impact a hunted population, although this has not been well studied (WEGGE, 1997; SCHUERHOLZ, 2001; SHACKLETON, 2001; HARRIS *et al.*, 2002). Alternatively, the presence of trophy hunters could deter poaching and, if funds generated from trophy hunting were used for conservation, the overall impact of well-managed trophy hunting to the harvested population could be positive (HARRIS, 1995; JOHNSON, 1997; LEWIS & ALPERT, 1997; LIU *et al.*, 2000; SHACKLETON, 2001; HARRIS & PLETSCHER, 2002).

The decline of argali has not gone unnoticed by government officials. The Minister for Nature and Environment told us that he was aware that argali populations were declining rapidly (U. Barsbold, Minister for Nature and Environment, pers. commun., 2001). In addition, the government stopped issuing permits for argali in the middle Altai Mountains in 1986 due to a lack of trophy rams (this may have been at the request of the hunting organizations who were having trouble finding trophy animals to satisfy their clients). In 1997, additional areas in the Altai Mountains were closed to trophy hunting, likely for the same reasons.

Review of Argali Trophy Hunting in Mongolia

The argali hunting season in Mongolia lasts from June through mid-November (SCHUERHOLZ, 2001). The Mongolian Cabinet sets the number of argali (and all other species) that may be harvested each year by trophy hunters based on recommendations from the Ministry for Nature and Environment (Ministry) (WINGARD, 2001). The Ministry, in turn, receives recommendations from local governments (SCHUERHOLZ, 2001) and the Mongolian Scientific Authority, which is currently the Institute of Biology of the Mongolian Academy of Sciences. The Institute of Biology bases its recommendation on argali population size estimates from recent research (when available) or expert opinion (more common). Until 2002, argali license

quotas always fell below numbers recommended by the Scientific Authority, and until recently, were much lower (Figure 5). The Cabinet doubled the quota for argali licenses from 40 in 2001 to 80 in 2002 (Figure 5).

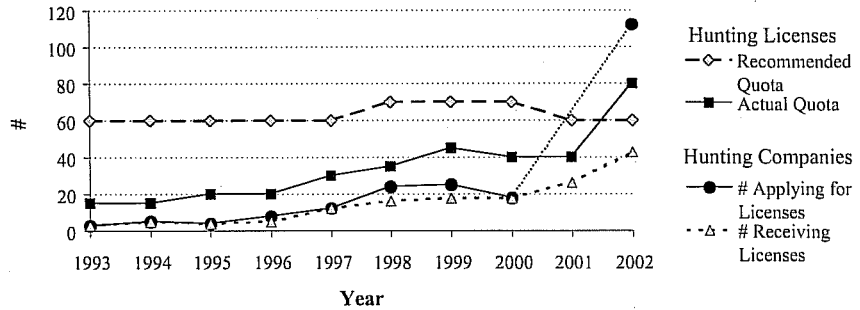


Figure 5. Argali (*Ovis ammon*) Trophy Hunting Licenses and Hunting Companies in Mongolia, 1993-2001. The recommended quota of hunting licenses is that provided by Mongolia's Scientific Authority (Institute of Biology, Mongolian Academy of Sciences) to the Ministry for Nature and Environment (MNE). MNE, in turn, makes a recommendation to the Cabinet Ministry. The Cabinet Ministry who decides the actual quota (Source MNE, unpubl. data, WINGARD, 2001).

According to the Mongolian Hunting Law, trophy hunting quotas must be based on research conducted by a "Certified Professional Organization," which is usually, but not always, the Academy of Sciences (WINGARD, 2001). The law goes on to require the Ministry to actively manage and conduct population inventories for game species every 4 years. Further, local governments must conduct inventories every year following hunting for "industrial purposes", which likely includes trophy hunting (WINGARD, 2001). The Hunting Law requires that management and inventorying be funded by the federal budget and hunting fees. Under the Mongolian Law on Environmental Protection of 1995 and Law on Fauna, all data collected on game species, including data on harvested animals, must be deposited in a centrally maintained database accessible to the public (WINGARD, 2001).

The Mongolian Law on Hunting Reserve Use Payments and Hunting and Trapping Authorization Fees (MLHF) of 1995 requires that trophy hunters pay both a hunting reserve use fee (i. e., permit to hunt in a particular area) and a license fee (i. e., permit to harvest an animal) (WINGARD, 2001). This law requires the Ministry to transfer reserve use fees to the Mongolian central budget and the licensing fees to the *Soum* budget (WINGARD, 2001). The MLHF was amended by the Mongolian law on Reinvestment of Natural Resource Use Fees for Conservation and Restoration of Natural Resources (hereafter Reinvestment Law)

in 2000 to increase the proportion of money that goes to conservation from fees paid for using natural resources (WINGARD, 2001). The Reinvestment Law requires that 50% of reserve use fees go into a Nature Protection Fund. The MLHF states that 60-70% of the value of an animal trophy must go to pay the reserve use fee and 20-30% of the value of the trophy must go toward the license fee. Government regulations clarify these costs; there is a reserve use fee of \$7,000 for a Gobi argali and \$14,000 for an Altai argali. Therefore, under the Reinvestment Law, \$3,500 for each Gobi argali and \$7,000 for each Altai argali theoretically goes into the Nature Protection Fund. In addition to the reserve use fee, there is also a license fee of \$2,000 for a Gobi argali and \$4,000 for an Altai argali.

Wild sheep hunters are willing to pay high fees to hunt argali (SCHUERHOLZ, 2001; HARRIS & PLETSCHER, 2002; HOFER, 2002). In Mongolia, money paid in excess of government fees (fees total \$9,000 for Gobi and \$18,000 for Altai argali regions) goes to the hunting company that conducts the hunt. Since trophy hunters are often willing to pay far more than these fees – we regularly see hunts advertised for over \$30,000 and Schuerholz (2001) suggests that the average price for Altai argali license is US\$40,000 – the number of hunting companies in Mongolia has been proliferating in recent years (Figure 5). Although only 3 companies applied for and received argali trophy licenses to sell to foreign hunters in 1993, 25 companies applied for and 18 received licenses by 1999 (Figure 5). In 2002, 43 companies received licenses out of 112 applicants (KHERLEN, 2002). Many of these companies have no experience operating hunts (e.g., only 12 of the 70 argali licenses distributed in 2002 were given to companies that hunted previously) and others acquire licenses simply as a speculative venture, reselling them to more experienced companies for a quick profit (ANONYMOUS, 2002; KHERLEN, 2002).

Mongolian hunting companies work closely with foreign, especially U. S., companies to help market their argali licenses. Hunting companies must also have hunting agreements with the *Soum* and *Aimag* governments in which the hunting will take place, and they must have the capacity to conduct quality hunts (SCHUERHOLZ, 2001). The majority of argali trophy hunters come from the U. S. For example, in 2001, 35 out of 42 hunters (83.3%) were from the U. S. (the others were from Spain: 3, Canada: 2, Hungary: 1, and Italy: 1) and in 2000, 33 out of 35 (92.3%) were from the U. S. (the other 2 were from Spain).

3. Controversy

A significant amount of controversy surrounds argali trophy hunting in Mongolia. This controversy has been manifested in local opposition to trophy hunting and accusations of corruption by the Mongolian media.

Lack of Conservation Management & Possible Corruption

Despite requiring active management, population surveys, and the deposition of data in a publicly accessible database under Mongolian law (WINGARD, 2001), no management plan for argali currently exists, population surveys are only rarely conducted and externally funded, and data on harvested argali remain inaccessible to the public. For example, national surveys were only conducted in 1975, 1985, and 2001. More restricted surveys on hunted populations either are not performed or the results are not available, making it impossible to assess the adequacy of continued harvests on specific populations.

To-date, we believe that little money from trophy hunting has supported argali monitoring, conservation, research, or management (SCHUERHOLZ, 2001). For example, this author states that no money has been available to the Academy of Sciences from the federal government to conduct argali surveys since at least 1990, despite their legal requirement to do so. However, the Foundation for North American Wild Sheep auctioned two special argali trophy licenses in 1994 and 2001 specifically to generate money for argali conservation and management. Money from the first auction was used to build a water catchment device in the Gobi Desert that, ironically, may do more harm than good, because it provides an additional water source for domestic animals which are more water limited than argali (READING *et al.*, 1999). A *Soum* administrative officer told us that heavy use of the catchment device by livestock has precluded argali from benefiting (Bilegdemberel, Tax Inspector of Khumen *Soum*, Pers. commun. 1998). It is unclear how much of the money generated from normal argali licenses goes toward conservation and management of the species. The Ministry maintains that it spends tens of thousands of U.S. dollars each year on argali conservation and management to conduct surveys, conduct anti-poaching activities, manage argali habitat, establish new protected areas, and administer the trophy hunting program (JOHNSON, 2002).

We are aware of little evidence that the Ministry conducts argali surveys or actively manages argali habitat (see also SCHUERHOLZ, 2001). Despite frequent requests and its obligation under Mongolian law, the Ministry has been unwilling to share any data it might have collected or other information it might possess that support its claims to be actively managing and conserving argali. SCHUERHOLZ (2001) was also unable to obtain data on argali on trophy hunting and management activities. Conversations with the Minister for Nature and Environment suggest that money generated from argali trophy hunting goes to the national budget (U. Barsbold, Minister for Nature and Environment, pers. commun., 2001). As such, it appears that argali only

benefit from general nature conservation activities funded by the national budget, such as establishing new protected areas and hiring and training rangers to for these areas. Yet, argali largely inhabit areas outside of protected areas (Figure 2), in which trophy hunting is prohibited in any case.

The Mongolian media suggests that corruption surrounds the Ministry's management of trophy hunting in the nation (ANONYMOUS, 2002; ENKHBAYAR, 2002; KHERLEN, 2002; ZORIG, 2002). For example, the *Seruuleg* newspaper stated that only 70 of the 80 argali licenses allocated for 2002 have been dispersed to hunting companies and that Mongolian Parliament and Cabinet members are lobbying to receive the other 10 (ANONYMOUS, 2002). The same article suggests that the Minister for Nature and Environment transferred US\$5,000 to a company he owns from the US\$ 37,500 that the 2001 auction of an argali license generated for argali conservation. If corruption does characterize management of argali trophy hunting, it might help explain why the Ministry has been reluctant to spend money from trophy fees on more active argali conservation and management. The Minister told us that Mongolia needed money derived from trophy hunting to support a variety of other governmental programs (U. Barsbold, Minister for Nature and Environment, pers. commun. 2001). He suggested helping him search for alternative fund raising mechanisms to generate revenue for argali conservation and management, which he agreed was desperately needed.

Similar to what Harris and Pletscher (In press) found in China, we suggest that argali trophy hunting in Mongolia is currently more of a business enterprise rather than a wildlife conservation program. However, there is growing pressure to change the situation to a minimum increase the conservation benefits of trophy hunting.

Pressure from conservationists and biologists with the Mongolian Academy of Sciences and the World Wide Fund for Nature (WWF) – Mongolia on the Ministry led to a meeting on strategic conservation planning for argali in October, 2000 (MNE and WWF-Mongolia 2000). This meeting, coupled with additional pressure in the form of a current U.S. lawsuit on the trophy hunting of argali in Mongolia and other Central Asian nations, led to the establishment of a working group on argali conservation management. That group has been working with the Ministry to develop guidelines for argali management since 200; however, we are aware of little progress by early 2003.

Growing Local Opposition

Local opposition to trophy hunting is apparently growing, especially in areas where trophy hunting has historically occurred. Most of our information

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on this issue is primarily anecdotal, obtained through informal interviews and discussions with local people and officials. As our data were not collected randomly or systematically, our interpretations may not represent the nation as a whole, and so should be viewed with caution. Still, important concerns over trophy hunting do exist for at least some people in some parts of Mongolia.

The only found opposition to trophy hunting was based on concerns over the impacts of trophy hunting on argali populations and on financial disincentives that currently exist at the *Soum* level. First, many local people resent foreign trophy hunters coming into their area to shoot argali. Many of the pastoralists with whom we spoke believe that trophy hunters are responsible for local declines in argali numbers (AMGALANBAATAR & READING, 2000). They also resent the fact that only foreigners can legally harvest argali in Mongolia. Finally, *Soum* governors and other local people told us that hunting companies had ignored local hunting bans in certain parts of the Altai Mountains or hired people to drive argali out of protected areas and areas currently under hunting bans to enable hunters to harvest animals from these regions.

There are also financial reasons for local opposition. Increasingly, the *Soum* Governors with whom we spoke actively oppose argali hunting within their territories. Further, some governors are working to include argali habitat within their *Soums* in new protected areas. *Soum* Governor opposition is understandable given that the current federal government (in power since 2000) reduces direct payments to *Soums* that receive hunting licenses by the amount of money those *Soums* should, by law, generate if all licenses are filled. However, there is no guarantee that all licenses will be sold, and if some are not, the *Soum* must operate with less money that it would have had in the absence of trophy hunting. For example, if the federal government usually provides US\$ 35,000 to a *Soum* in direct payments, but that *Soum* is allocated 10 Gobi argali trophy licenses, the federal government will only pay the *Soum* US\$ 25,000 for that year, regardless of how many licenses sell. Thus, at most, *Soum* governments that host trophy hunters can only hope to break even, and often they lose money.

Local communities realize few to no other benefits from trophy hunting as well (SCHUERHOLZ, 2001). Since all of the companies that operate the trophy hunts are based in the capital, Ulaanbaatar, the *Soums* receive few benefits from the increased foreign capital that flows into Mongolia with the hunters. Hunting companies usually bring most of their own food and equipment, and often most of their staff from the capital (SCHUERHOLZ, 2001). Hunting companies occasionally hire a few local guides and other staff, and often pay local people to locate and track trophy rams in advance of a hunter's arrival to facilitate and expedite the hunt. But, that is usually the most a local community can hope to realize from trophy hunting.

Some *Soum* governors are now petitioning to have argali habitat in their territory included in the Mongolian protected areas system, as protected areas in Mongolia do not allow hunting. Thus, establishing a protected area prevents potential income losses associated with trophy hunting. In addition, *Soum* governors hope that by creating a protected area, they will attract an international conservation project that will bring benefits to their communities. Also, most protected areas allow at least some grazing, and so remain popular with local people.

The growing local resentment of trophy hunting may well result in increased poaching of argali as well, especially as prices for argali horns rise with the development of Chinese trade. Currently, there appears to be little incentive for a local hunter to conserve an argali ram that he or she believes will later be shot by a foreign trophy hunter.

4. Toward a Solution

Many people advocate trophy hunting as a means of generating income for the conservation and management of target species, especially in developing countries where other sources of money and incentives for conservation are often lacking (DES CLERS, 1985; JOHNSON, 1997; LEWIS & ALPERT, 1997; WEGGE, 1997; LIU *et al.*, 2000; SHACKLETON, 2001; HARRIS & PLETSCHER, 2002; HOFER, 2002). However, trophy hunting only benefits conservation if 1) the money generated actually goes toward active conservation and management, 2) the hunting program is sustainable, and 3) the local community supports the program (related to sustainability) (HARRIS, 1995; JOHNSON, 1997; LEWIS & ALPERT, 1997; HARRIS & PLETSCHER, 2002). We argue that successful argali trophy in Mongolia requires the development of a hunting program that manages, conserves, and restores argali population in such a way that enjoys enduring public, especially local public, support. This, in turn, requires that the hunting program be characterized by 1) openness and transparency, 2) external review and oversight, 3) a mix of top-down and bottom-up authority that enjoys local community support, and 4) active and adaptive argali conservation and management using funds generated by trophy hunters.

All information on conservation, management, and exploitation must be open and transparent. In addition, individuals and organizations should be held accountable for their actions. Increasing accountability might require amendments to existing laws. The amount of money generated by argali trophy hunting is very large for a country like Mongolia. As such, the potential for corruption is great. Open and transparent accounting ensures that the

public knows how much money is generated and where that money goes. Similarly, all data on argali biology, ecology, habitat status, and harvests must also be open and available to the public and to external review to ensure that the species not only survives, but flourishes. Data on the size of hunted populations are crucial in this regard (LEWIS & ALPERT, 1997; WEGGE, 1997; HARRIS & PLETSCHER, 2002). Also important are data on harvested animals (WEGGE, 1997). For biological data, Mongolia law calls for establishing a central source for data deposition that is open to the public (WINGARD, 2001). This should be established immediately and co-managed by the Ministry and the Academy of Sciences or a nongovernmental organization.

To better ensure that trophy hunting proceeds without corruption and in a manner that serves the interests of the argali first (but also local people and trophy hunters), it is strongly recommended to make an external review and oversight. It would be also convenient to establish an external oversight body comprised of individuals knowledgeable about wildlife ecology, trophy hunting, or accounting, but with no vested interest in the activity and with no direct links to the Ministry or to any trophy hunting organizations. This body, similar to that recommended by SCHUERHOLZ (2001), would ideally include several people and would function as an external review committee. The committee would review all data associated with the trophy hunting program, including data on financial accounting, population surveys, animal harvests, law enforcement, and argali research, and make recommendations to continually improve the program. Annual committee reviews would be submitted to the Ministry, Cabinet, and hunting and conservation organizations, and made available to the public. The committee would be funded by trophy hunting fees, although we suspect and hope that the costs associated with the committee would be minimal.

Currently, trophy hunting in Mongolia is imposed on local communities from the federal government. Such top-down authority and management should change to provide a better mix of top-down and bottom-up authority and management. This requires developing a community-based initiative that more strongly ties conservation and local benefits to argali trophy hunting. We believe that the only way to ensure the sustainability of trophy hunting is to ensure that local people benefit and see the value in conserving targeted animals and their habitat (JOHNSON, 1997; LEWIS & ALPERT, 1997; WEGGE, 1997; HARRIS & PLETSCHER, 2002).

SCHUERHOLZ (2001) found that local people and governments in two areas of the Altai Mountains were receptive to the idea of initiating a community-based approach to argali trophy hunting and conservation management. Such a process must begin as soon as possible. In a community-based system, permits would be allocated to local communities or companies based

in and strongly tied to those communities. Under this system, a permit operator would be bound to a specific geographic area, such that someone unsuccessful in filling a license in one area would no longer be able to move to another part of Mongolia. These changes would create incentives for long-term conservation. Such communities or community-based companies would have partial responsibility for argali management and they would make requests for the number of argali licenses issued each year. That request would be subject to review by the oversight body mentioned above, based on population and harvest data.

As SCHUERHOLZ (2001) mentioned, the development of any community-based approach to natural resources management in Mongolia will require substantial capacity building with local people and local governments (at both the *Soum* and *Aimag* levels). Trophy hunting also must be integrated with local land uses (LEWIS & ALPERT, 1997; WEGGE, 1997). In Mongolia this means managing livestock grazing and other land uses (e. g., mining) in ways that reduce their impacts on argali, and using some of the proceeds from trophy hunting to compensate local people who forego economic opportunities for the sake of argali conservation. SCHUERHOLZ (2001) lists numerous other barriers to a community-based trophy hunting program, most notably including a lack of economic alternatives for herders; lack of incentives for local people to support trophy hunting; poaching coupled with poor law enforcement and few, insufficiently equipped and trained rangers; low public awareness; insufficient legislation; poor understanding of argali ecology and conservation needs; and especially a federal government unwilling to cooperate fully. Still, we believe that Mongolia should begin moving in this direction, as it offers the best opportunity for sustainable conservation and trophy hunting of argali. The exact form that such an approach would take requires additional consideration and consultation with all the major stakeholders in Mongolia. It would, however, likely require revisions to the current Hunting Law.

Successful argali trophy hunting and conservation, even with a community-based approach, requires active management. Such an approach would entail continually altering management actions based on an analysis of the success of past management in reaching desired objectives. This requires substantial data collection, as well as frequent and honest evaluation (KLEIMAN *et al.*, 2000).

Monitoring surveys must be made on a regular basis throughout the range of argali, but especially wherever argali are hunted (JOHNSON, 1997; WEGGE, 1997; SCHUERHOLZ, 2001; SHACKLETON, 2001). Crucial data include population size and trends, as well as habitat condition. It is important to follow the recommendations of WEGGE (1997) for biological management of trophy hunting. Additional data from non-hunted populations living in and out of protected areas is also useful for comparative analyses over

time. Data collection should be standardized to permit better comparisons. This will likely require capacity building for argali researchers, as well as participants in any community-based management programs that might be developed. It should be possible to fund these activities using a relatively small portion of the large trophy hunting fees, especially given the relatively low costs of personnel in Mongolia.

Successful argali conservation management requires controlling poaching. As such, law enforcement activities must be greatly increased. This will likely require expanding the number of conservation rangers in Mongolia and providing them with additional equipment, training, and incentives. For example, the majority of rangers in Mongolia are currently unarmed, yet they are charged with apprehending armed (often heavily) poachers. Similarly, the Mongolian government must begin cracking down on illicit trade in wildlife and wildlife parts. Greater cooperation with Chinese customs and wildlife law enforcement authorities is crucial. This appears to be a relatively new and rapidly growing threat to argali.

Finally, Mongolia must begin the difficult process of better managing livestock grazing (FINCH, 2002). This is a sensitive topic, as nomadic pastoralism remains at the core of most Mongolians' identity (BEDUNAH & SCHMIDT, 2000). Yet, Mongolians are becoming increasingly aware of the need to begin instituting some form of grazing reform, especially after 2-3 years of harsh environmental conditions coupled with range degradation that led to the loss of millions of livestock (FINCH, 2002). Grazing reform is particularly necessary in protected areas and other areas managed for wildlife use (BEDUNAH & SCHMIDT, 2000), such as hunting areas. The effects of livestock grazing may represent the largest challenge to successful argali management (SCHUERHOLZ, 2001). Because range management that benefits argali will likely have a negative impact on pastoralists, community-based approaches to hunting and conservation that provide benefits to pastoralists to compensate them from losses resulting from livestock reform will more likely succeed in generating or maintaining local support.

5. Conclusions

Argali sheep in Mongolia are highly sought by trophy hunters because of the animals' large size and impressive horns. Yet, argali in Mongolia are declining, this is probably due primarily to poaching competition with domestic livestock. Many people argue that trophy hunting money could be used for conservation, especially because hunters are willing to pay large fees, thus generating substantial revenue while harvesting relatively few

sheep. Unfortunately, very little money from trophy hunting has gone toward argali conservation management to-date. If left unmanaged, argali numbers will undoubtedly continue to decline, further threatening the species, but also reducing the number of large rams available for trophy hunters.

Controversy surrounding trophy hunting in Mongolia is increasing both domestically and internationally. The Mongolian media suggests that governmental corruption surrounds argali trophy hunting and is calling for reforms. Local people and communities complain that they receive little benefit from the hunting, resulting in increasing local opposition.

Without no doubt, argali trophy hunting in Mongolia requires substantial changes. Money generated from trophy hunting must benefit the species and the local people that share their grazing lands with argali. Because argali command such high prices, the potential for corruption is great. Thus, any argali trophy hunting program should be open, transparent, and subject to external review by qualified individuals with no financial interest in the program. Trophy hunting should be community-based and strongly linked to conservation management programs for the species and its habitat. Although these challenges are formidable, in our opinion such changes are possible. In the absence of change, argali will likely continue to decline, negatively impacting trophy hunters, hunting companies, local people who enjoy watching argali and stand to gain from community-based programs, and, most importantly, the argali and their ecosystems.

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