



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R9-ES-2011-0003]; [FXES111309F2130-134-FF09E22000]

RIN 1018-AY42

Endangered and Threatened Wildlife and Plants; Listing the Straight-Horned Markhor as Threatened With Special Rule

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule; revision.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), notify the public that we are making changes to our proposed rule of August 7, 2012, to reclassify the straight-horned markhor (*Capra falconeri jerdoni*) from endangered to threatened. We propose to combine the straight-horned markhor (*Capra falconeri jerdoni*) and the Kabul markhor (*Capra falconeri megaceros*) into one subspecies, the straight-horned markhor (*Capra falconeri megaceros*), under the Endangered Species Act of 1973, as amended (Act) due to a change in taxonomy. We have conducted a status review of the straight-horned markhor (*C.f. megaceros*) and propose to list this subspecies as threatened under the Act. We are also proposing a concurrent special rule. The effects of these regulations will be to protect and conserve the straight-horned markhor, while encouraging local communities to conserve additional populations of the straight-horned markhor through sustainable-use management programs.

DATES: We will consider comments and information received or postmarked on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES**, below) must be received by 11:59 p.m. Eastern Time on the closing date.

We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit information by one of the following methods:

(1) Electronically: Go to the Federal eRulemaking Portal:

http://www.regulations.gov. In the Search box, enter FWS–R9–ES–2011–0003, which is the docket number for this rulemaking. You may submit a comment by clicking on “Comment Now!” If your comments will fit in the provided comment box, please use this feature of *http://www.regulations.gov*, as it is most compatible with our comment review procedures. If you attach your comments as a separate document, our preferred file format is Microsoft Word. If you attach multiple comments (such as form letters), our preferred format is a spreadsheet in Microsoft Excel.

(2) By hard copy: Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R9–ES–2011–0003; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We request that you send comments **only** by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see **Information Requested** under **SUPPLEMENTARY INFORMATION** for more information).

FOR FURTHER INFORMATION CONTACT: Janine Van Norman, Chief, Branch of Foreign Species, Endangered Species Program, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 420, Arlington, VA 22203; telephone 703-358-2171; facsimile 703-358-1735. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

I. Purpose of the Regulatory Action

We are proposing to combine two subspecies of markhor currently listed under the Endangered Species Act of 1973, as amended (Act), the straight-horned markhor (*C. f. jerdoni*) and Kabul markhor (*Capra falconeri megaceros*), into one subspecies, the straight-horned markhor (*C. f. megaceros*), based on a taxonomic change. We conducted a status review of the newly combined subspecies and are issuing a proposed rule to list the straight-horned markhor (*C. f. megaceros*) as threatened under the Act.

We are also proposing a special rule that would allow for the import of sport-hunted straight-horned markhor trophies under certain conditions. This regulation would support and encourage conservation actions of the straight-horned markhor.

II. Major Provision of the Regulatory Action

If adopted as proposed, this action will eliminate the separate listing of the straight-horned markhor and Kabul markhor as endangered and list the combined straight-horned markhor subspecies as threatened in the List of Endangered and Threatened Wildlife at 50 CFR 17.11(h), and would allow the import of sport-hunted straight-horned markhor trophies under certain conditions at 50 CFR 17.40. This action is authorized by the Act.

Previous Federal Actions

On June 14, 1976, we published in the **Federal Register** a rule listing the straight-horned markhor, or the Suleiman markhor (*Capra falconeri jerdoni*), and the Kabul markhor (*C. f. megaceros*), as well as 157 other U.S. and foreign vertebrates and invertebrates, as endangered under the Act (41 FR 24062). All species were found to have declining numbers due to the present or threatened destruction, modification, or curtailment of their habitats or ranges; overutilization for commercial, sporting, scientific, or educational purposes; the inadequacy of existing regulatory mechanisms; or some combination of the three. However, the main concerns were the high commercial importance and the inadequacy of existing regulatory mechanisms to control international trade.

Later, the Suleiman markhor and the Kabul markhor were considered by some

authorities to be the single subspecies *C. f. megaceros* (straight-horned markhor). These subspecies currently remain listed as separate entities under the Act.

On March 4, 1999, we received a petition from Sardar Naseer A. Tareen, on behalf of the Society for Torghar Environmental Protection and the International Union for Conservation of Nature (IUCN) Central Asia Sustainable Use Specialist Group, requesting that the Suleiman markhor (*Capra falconeri jerdoni* or *C. f. megaceros*) population of the Torghar Hills region of the Balochistan Province, Pakistan, be reclassified from endangered to threatened under the Act. On September 23, 1999 (64 FR 51499), we published in the **Federal Register** a finding, in accordance with section 4(b)(3)(A) of the Act, that the petition had presented substantial information indicating that the requested reclassification may be warranted, and we initiated a status review. We opened a comment period, which closed January 21, 2000, to allow all interested parties to submit comments and information. A 12-month finding was never completed.

On August 18, 2010, we received a petition dated August 17, 2010, from Conservation Force, on behalf of Dallas Safari Club, Houston Safari Club, African Safari Club of Florida, The Conklin Foundation, Grand Slam Club/Ovis, Wild Sheep Foundation, Jerry Brenner, Steve Hornaday, Alan Sackman, and Barbara Lee Sackman, requesting the Service downlist the Torghar Hills population of the Suleiman markhor (*Capra falconeri jerdoni* or *C. f. megaceros*), in the Balochistan Province of Pakistan, from endangered to threatened under the Act. On June 2, 2011, we published in the **Federal Register** a finding that the petition had presented substantial information

indicating that the requested reclassification may be warranted, and we initiated a status review (76 FR 31903). We opened a comment period, which closed August 1, 2011.

On February 1, 2012, Conservation Force, Dallas Safari Club, and other organizations and individuals filed suit against the Service for failure to conduct a 5-year status review pursuant to section 4(c)(2)(A) under the Act (*Conservation Force, et al. v. Salazar*, Case No. 11 CV 02008 D. D. C.). On March 30, 2012, a settlement agreement was approved by the Court (11-CV-02008, D. D. C.), in which the Service agreed to submit to the **Federal Register** by July 31, 2012, a 12-month finding on the August 2010 petition. On August 7, 2012, the Service published in the **Federal Register** a 12-month finding and proposed rule to reclassify the straight-horned markhor (*C.f. jerdoni*) from endangered to threatened (77 FR 47011).

Information Requested

We intend that any final action resulting from this proposed rule will be based on the best scientific and commercial data available. Therefore, we request comments and information from other concerned governmental agencies, the scientific community, and any other interested parties concerning this proposed rule. We particularly seek clarifying information concerning:

(1) Distribution, habitat selection, diet, and population abundance and trends of this subspecies.

(3) The effects of habitat loss and changing land uses on the distribution and abundance of this subspecies.

(4) The factors that are the basis for making a listing/delisting/downlisting determination for a species under section 4(a) of the Act, which are:

(a) The present or threatened destruction, modification, or curtailment of its habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; or

(e) Other natural or manmade factors affecting its continued existence.

(5) Information on the status of habitat measures being implemented in the Torghar Conservation Project.

(6) Information on whether changing climatic conditions are affecting the subspecies or its habitat.

Please include sufficient information with your submission (such as full references) to allow us to verify information you provide. Submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made “solely on the basis of the best scientific and commercial data available.”

Prior to issuing a final rule on this proposed action, we will take into consideration all information we receive. Such information may lead to a final rule that differs from this proposal. All comments, including names and addresses of commenters, will become part of the administrative record.

Public Hearing

At this time, we do not have a public hearing scheduled for this proposed rule. The main purpose of most public hearings is to obtain public testimony or comment. In most cases, it is sufficient to submit comments through the Federal eRulemaking Portal, described above in the **ADDRESSES** section. If you would like to request a public hearing for this proposed rule, you must submit your request, in writing, to the person listed in **FOR FURTHER INFORMATION CONTACT** by the date specified above in **DATES**.

Background

Taxonomic Classification

The markhor (*Capra falconeri*) is a species of wild goat belonging to the Family Bovidae and Subfamily Caprinae (sheep and goats) (Valdez 2008, unpaginated). When the markhor was first listed under the Act in 1975, seven subspecies of markhor were

generally recognized: *Capra falconeri jerdoni* (straight-horned or Suleiman markhor), *C. f. megaceros* (Kabul markhor), *C. f. cashmirensis* (Kashmir markhor), *C. f. falconeri* (Astor markhor), *C. f. ognevi* (Uzbek markhor), *C. f. heptneri* (Tajik markhor), and *C. f. chialtanensis* (Chiltan markhor) (64 FR 51499, September 23, 1999; Roberts 1977, p. 196). In 1975, Schaller and Khan (1975, pp. 188, 191) recognized 3 subspecies of markhor based on horn shape and body characteristics: *C. f. jerdoni* and *C. f. megaceros* were combined into *C. f. megaceros* (straight-horned markhor); *C. f. cashmirensis* and *C. f. falconeri* were combined into *C. f. falconeri* (flare-horned markhor); and *C. f. ognevi* and *C. f. heptneri* were combined into *C. f. heptneri* (Heptner's markhor). Many authorities consider *C. f. chialtanensis* to be *Capra aegagrus chialtanensis* (Chiltan wild goat) (64 FR 51500, September 23, 1999).

In our June 2, 2011, 90-day petition finding, and August 7, 2012, proposed rule to reclassify the straight-horned markhor (*C. f. jerdoni*), we requested information on the taxonomy of *C. f. jerdoni* and *C. f. megaceros* to determine if these constitute a single subspecies. We have reviewed the available information, including information submitted by the public. While scientists have not reached a consensus on the correct classification of markhor (Zahler 2013, pers. comm.; Frisina 2012, pers. comm.), the Integrated Taxonomic Information System (ITIS), International Union for Conservation of Nature (IUCN), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) all follow Grubb 2005 (p. 701), which recognizes three subspecies of markhor as recommended by Schaller and Khan (1975 pp. 188, 191) (ITIS 2013a, unpaginated; ITIS 2013b, unpaginated; Smithsonian National Museum of Natural

History 2011, unpaginated; CITES Resolution Conf. 12.11. (Rev. CoP15) 2010, p. 3; Valdez 2008, unpaginated; CITES 10.84 (Rev.) 1997, p. 894).

Currently, the straight-horned markhor (*C.f. jerdoni*) and Kabul markhor (*C.f. megaceros*) are listed as separate subspecies under the Act. We propose to revise the List of Endangered and Threatened Wildlife at 50 CFR 17.11(h) to maintain consistency with ITIS, IUCN, and CITES to reflect the current scientifically accepted taxonomy and nomenclature. In the Proposed Regulation Promulgation section of this document, we propose the taxonomic change to reflect the combining of the straight-horned markhor (*C.f. jerdoni*) and Kabul markhor (*C.f. megaceros*) into one subspecies, the straight-horned markhor (*C.f. megaceros*).

Subspecies Information

Due to the proposed taxonomic change, we have conducted a status review of the newly combined straight-horned markhor subspecies. For most of the straight-horned markhor populations, there is no detailed information on distribution, population estimates, or threats to the subspecies; most information that is available predates the onset of hostilities in the region in 1979. However, the Torghar Hills population of the straight-horned markhor has been extensively studied since the mid-1980s due to the implementation of a conservation plan in this area. Therefore, this status review mainly consists of information related to this population. When possible, we have included general information on the status of the populations outside of the Torghar Hills. For

these particular populations, for which we lack information, we request additional information from the public during this proposed rule's comment period (see

Information Requested, above).

Species Description

Markhor are sturdy animals with strong, relatively short, thick legs and broad hooves. They are a reddish-grey color, with more buff tones in the summer and grey in the winter. The legs and belly are a cream color with a conspicuous dark brown pattern on the forepart of the shank interrupted by a white carpal patch. They also have a dark brown mid-dorsal stripe that extends from the shoulders to the base of the tail. The tail is short and sparsely covered with long black hairs, but is naked underneath. Adult males have an extensive black beard followed by a shaggy mane of long hairs extending down the chest and from the fore part of the neck. There is also a crest of long black and dark brown hairs that hang like a mane down either side of the spine from the shoulders to the croup (Roberts 1977, p. 197). Horns are straight with an open, tight spiral resembling a corkscrew (Schaller and Khan 1975, p. 189).

Life History

Straight-horned markhor are associated with extremely rugged terrain with precipitous cliffs, rocky caves, and bare rock surfaces interspersed with patches of arid, steppe vegetation. They can be found from 600 meters (m) (1,969 feet (ft)) up to 3,300 m

(10,827 ft) in elevation (Woodford *et al.* 2004, p. 181; Mitchell 1989, p. 8; Johnson 1994b, p. 5).

Markhor are diurnal in feeding activity. They are most active in the early morning and late evening (Mitchell 1989, p. 8). Wild pistachios are a preferred food for straight-horned markhor (Johnson 1994, p. 12; Roberts 1977, p. 198), although in general they are known to feed on grasses and leaves, and twigs of bushes. Markhor seek water in the late afternoon; they may need to descend to valley bottoms for water, but only after darkness (Roberts 1977, p. 198).

Markhor are gregarious, with females, their young, and immature males associating in small herds, but competition with domestic goat flocks may drive markhor populations to higher terrain and result in larger herds. Adult males live solitary lives, taking shelter under rock overhangs or natural caves. They only join the females and young during the rut, which for the straight-horned markhor peaks around mid-November and lasts about 2 weeks. Males may attach themselves to one particular territory or herd. Fighting between rival males also occurs during this time. Markhor reach sexual maturity around 3 years of age. Females usually give birth to one young, but twins are not uncommon. A young markhor will remain with its mother until the rutting season or until the next young is born. After this, the female will drive the older young away if it approaches too closely. In the wild, it is possible that markhor can live up to 18 years of age, but perhaps few males live beyond 11 or 12 years (Ali 2008, p. 16; Mitchell 1989, p. 9; Roberts 1977, pp. 198–199).

Range and Population

Historically, the straight-horned markhor inhabited a wide range in the mountains of eastern Afghanistan and Pakistan. In Afghanistan, it has been reported that this subspecies survives only in the Kabul Gorge and the Kohe Safi area of Kapissa Province, and in some isolated pockets in between (Ali 2008, pp. 17–18; Valdez 2008, unpaginated; Habibi 1997, p. 208; Schaller and Khan 1975, pp. 195–196). However, no surveys have been conducted in the area, and it is likely that this subspecies has been extirpated from Afghanistan (Zahler 2013, pers. comm.). In Pakistan, the straight-horned markhor is found in the mountains of Balochistan and Khyber Pakhtunkhwa provinces. There is one unconfirmed report of the subspecies in Punjab Province (Valdez 2008, unpaginated; CITES 10.84 (Rev.) 1997, p. 894).

Within Baluchistan, the straight-horned markhor has been reduced to small, scattered populations on all the mountain ranges immediately to the north and east of Quetta, including Murdar, Takhatu, Zarghun, Kaliphat, Phil Garh, and Suleiman. It is reported that the straight-horned markhor still survives in the Shingar Range on the border of Balochistan and South Waziristan. The greatest concentration is in the Torghar Hills of the Toba Kakar Range on the border with Afghanistan, within a community-based management program, the Torghar Conservation Project (Frisina and Tareen 2009, pp. 142–143; Johnson 1994b, p. 16; Roberts 1977, p. 198; Schaller and Khan 1975, p. 196).

Within Khyber Pakhtunkhwa, the subspecies is reported to still survive in the area of Sheikh Buddin, as well as the Sakra Range, Murghazar Hills, Khanori Hills, and Safed Koh Range; however, the occurrence in Safed Koh has been questioned due to a lack of information (Ali 2008, p. 18; Valdez 2008, unpaginated; Hess *et al.* 1997, p. 255; Roberts 1977, p. 198).

Limited information is available for populations throughout most of the straight-horned markhor's range. Many historical populations were extirpated due to over-hunting (Johnson 1994b, p. 5; Johnson 1994, p. 10). In Afghanistan, very few straight-horned markhor survive; perhaps as few as 50–80 occur in the Kohe Safi region, with few in other isolated pockets (Valdez 2008, unpaginated; Habibi 1997, pp. 205, 208; Schaller and Khan 1975, p. 195). However, as stated above, this subspecies may be extirpated from Afghanistan (Zahler 2013, pers. comm.). In Pakistan, Schaller and Khan (1975, pp. 195–196) estimated 150 in Takhatu, 20 to 30 in Kalifat, 20 in Zarghum, 20 in Shinghar, 20 around Sheikh Buddin, 50 in the Sakra Range, and at least 100 in Safed Koh. Few were estimated to survive in the Murdar Range, and a remnant population may have existed near Lorelei in the Gadabar Range. Roberts (1969 in Valdez, 2008, unpaginated) believed the number of markhor in the Toba Kakar range was fewer than 500. In 1984, Tareen estimated fewer than 200 remained in the Torghar Hills (Mitchell, 1989, p. 9). Overall, Schaller and Khan (1975, pp. 195–196) estimated fewer than 2,000 straight-horned markhor survived throughout the subspecies' range.

In general, markhor populations are reported as declining (Kanderian *et al.* 2011, p. 287; Valdez 2008, unpaginated). Hess *et al.* (1997, p. 255) and Habibi (1997, p. 208) concluded that the straight-horned markhor had likely not increased in recent years. Current estimates for populations of straight-horned markhor are lacking, with the exception of the population in the Torghar Hills of the Toba Kakar Range. This population has been extensively studied due to the implementation of a community-based management program. In addition, as part of the use of annual export quotas for markhor sport-hunted trophies granted to Pakistan at the 10th meeting of the Conference of the Parties to CITES, Pakistan submits annual surveys of markhor populations, including populations within the Torghar Conservation Area (Resolution Conf. 10.15 (Rev. CoP 14); See discussion below under **Summary of Threats**). Based on surveys conducted from 1985 through 1988, Mitchell (1989, p. 9) estimated 450 to 600 markhor inhabited the Torghar Hills. Regular surveys of the managed area have taken place since 1994, when Johnson (1994b, p. 12) estimated the population of markhor to be 695. Later surveys estimated the population to be 1,296 in 1997; 1,684 in 1999; 2,541 in 2005; 3,158 in 2008; and 3,518 in 2011 (Frisina and Rasheed 2012, p. 5; Arshad and Khan 2009, p. 9; Shafique 2006, p. 6; Frisina 2000, p. 8; Frisina *et al.* 1998, p. 6). Although most of the mountain ranges in Balochistan have not been formally surveyed, Johnson (1994b, p. 16) concluded that Torghar was the last remaining stronghold for the subspecies.

Summary of Threats

Throughout the range of the straight-horned markhor, over-hunting, keeping of large herds of livestock for subsistence, deforestation, and the lack of effective federal and provincial laws have devastated populations of straight-horned markhor and destroyed vital habitat (Valdez 2008, unpaginated; Habibi 1997, pp. 205, 208; Hess *et al.* 1997, p. 255).

Small-scale hunting has been a long-standing tradition of the people of Afghanistan and Pakistan (Zahler 2013, pers. comm.; Kanderian *et al.* 2011, p. 283; Frisina and Tareen 2009, p. 146; Ahmed *et al.* 2001, p. 2). However, prior to the beginning of the Soviet-Afghan War in 1979, few animals were hunted, as weapons were primitive and ammunition scarce and expensive. After the beginning of the war, there was an influx of more sophisticated weapons, such as semi- and fully-automatic rifles, and cheap ammunition was more accessible. This proliferation of arms and increased likelihood of a successful kill, combined with millions of displaced people dependent on wild meat for subsistence, led to excessive hunting of wildlife and critically low populations of straight-horned markhor (Zahler 2013, pers. comm.; Kanderian *et al.* 2011, p. 284; Frisina and Tareen 2009, p. 145; MAIL 2009, p. 4; Woodford *et al.* 2004, p. 181; Ahmed *et al.* 2001, pp. 2, 4; CITES 10.84 (Rev.) 1997, p. 895; Habibi 1997, pp. 205, 208; Hess *et al.* 1997, p. 255; Johnson 1994b, p. 1).

In an effort to manage diminishing wildlife populations, national bans on hunting were implemented in Pakistan in 1988, 1991, and 2000. However, the ban had little impact on the recovery of wildlife populations (Ahmed *et al.* 2001, p. 5). In 2005,

Afghanistan banned hunting for 5 years, but there was no enforcement and most Afghans were either unaware of the Decree or ignored it (Kanderian *et al.* 2011, p. 291; MAIL 2009, pp. 4, 23, 24). Additionally, the markhor (*Capra falconeri*) is a protected species under Afghanistan's Environmental Law of 2007, the Balochistan Wildlife Protection Act of 1974 (BWPA), and the North-West Frontier Province Wild-life (Protection, Preservation, Conservation, and Management) Act (NWFPWA) of 1975, which extends to all of the Khyber Pakhtunkhwa Province. Under these laws, hunting, killing, or capturing of markhor is prohibited (MAIL 2009, p. 23; Aurangzaib and Pastakia 2008, p. 58; Official Gazette No. 912, dated 25 January 2007, Article 49; BWPA 1977, p. 15; NWFPWA 1975, Third Schedule).

Today, the straight-horned markhor has been extirpated from much of its former range due to over-hunting, and they survive only in the most inaccessible regions of its range (Habibi 1997, p. 205; Johnson 1994b, p. 5; Johnson 1994, p. 10), despite laws intended to provide protection from hunting. We have no information on the extent of poaching currently taking place in most of the subspecies' range, but information suggests that hunting remains a threat to most remaining populations of this subspecies (UNEP 2009, p. 10; NEPA and UNEP 2008, p. 17; Valdez 2008, unpaginated; CITES 10.84 (Rev.) 1997, p. 895; Hess *et al.* 1997, p. 255). However, increases in populations of ungulates, including markhor, have occurred in conservation areas managed specifically for trophy hunting (University of Montana 2013, unpaginated; Frisina and Rasheed 2012, p. 5; WCS 2012, unpaginated; Arshad and Khan 2009, p. 9; Government of Pakistan 2009, p. viii; Ali 2008, pp. 21, 38, 64; Shafique 2006, p. 6; Frisina 2000, p. 8;

Virk 1999, p. 142; Frisina *et al.* 1998, p. 6). Currently, only one conservation plan is being implemented for the straight-horned markhor, the Torghar Conservation Project (TCP) in Torghar Hills, Pakistan.

In the early 1980s, local tribal leaders became alarmed at the significant decline in the markhor population in the Torghar Hills (Frisina and Tareen 2009, p. 145; Ahmed *et al.* 2001, p. 4; Johnson 1994b, p. 1). The population had reached a critical level, estimated at fewer than 200 (Ahmed *et al.* 2001, p. 4; Johnson 1994b, p. 14; Mitchell, 1989, p. 9). The tribal leaders attributed the decline to an increase in poaching due to the significant increase in weapons in the area during the Soviet-Afghan War (Frisina and Tareen 2009, p. 145; Johnson 1994b, p. 1). After unsuccessful attempts to receive assistance from the Balochistan Forest Department, they turned to wildlife biologists in the United States, including the U.S. Fish and Wildlife Service. Together, they developed the TCP, an innovative, community-based conservation program that allows for limited trophy hunting to conserve local populations of markhor, improve habitat for both markhor and domestic livestock, and improve the economic conditions for local tribes in Torghar (Frisina and Tareen 2009, p. 146; Woodford *et al.* 2004, p. 182; Ahmed *et al.* 2001, p. 4 Johnson 1994b, pp. 1–2).

In 1985, the TCP was launched and covered most of the Torghar area (approximately 1,000 square kilometers (386 square miles)). First, tribal leaders implemented a ban on all hunting activities by tribesmen in the Torghar Hills. Then, local tribesmen were hired as game guards to assist in population surveys and prevent

poachers from entering the Torghar Hills. Guards were placed at points of entry into the protected area to inform migrating tribesmen of the hunting ban, who, in turn, agreed to the ban so as not to jeopardize their passage through the Torghar Hills. Support for the program, including salaries for the game guards, is raised through fees for limited trophy hunting of markhor within the TCP, mostly by foreign game hunters. Currently, markhor fees are \$35,000 U.S. dollars, 80 percent of which goes to the TCP and the other 20 percent goes to the Pakistani government. In the beginning, 7 game guards were hired; currently, 82 game guards are employed. The number of markhor allowed to be hunted each year is based on surveys conducted by game guards and wildlife biologists (Frisina and Tareen 2009, pp. 142, 146–147; Ahmed *et al.* 2001, p. 5; Johnson 1994b, p. 3). Numbers of animals taken have ranged from 1 to 5 animals per hunting season, or less than the 2 percent of the total population recommended by Harris (1993 in Woodford *et al.* 2004, p. 182) annually for trophy hunting (Frisina and Tareen 2009, pp. 146–147, 149; Ali 2008, p. 20; Woodford *et al.* 2004, p. 182; Johnson 1997, pp. 403–404). Because markhor have a polygynous mating system, reproduction rates have not been affected by the removal of a limited number of adult males (Woodford *et al.* 2004, p. 182), as evidenced by the continuing increase in the Torghar Hills population.

As a result of the TCP, poaching has been eliminated in the Torghar Hills (Woodford *et al.* 2004, p. 182; Johnson 1994b, p. 3). Johnson (1994b, p. 15) attributed the markhor population growth to the substantial reduction in mortality when uncontrolled hunting was stopped.

The markhor (*Capra falconeri*) is protected under CITES, an international agreement between governments to ensure that the international trade of CITES-listed plant and animal species does not threaten species' survival in the wild. Under this treaty, CITES Parties (member countries or signatories) regulate the import, export, and reexport of specimens, parts, and products of CITES-listed plant and animal species. Trade must be authorized through a system of permits and certificates that are provided by the designated CITES Management Authority of each CITES Party. Both Afghanistan and Pakistan are Parties to CITES.

The straight-horned markhor was listed in CITES Appendix I, effective July 1, 1975. An Appendix-I listing includes species threatened with extinction whose trade is permitted only under exceptional circumstances, which generally precludes commercial trade. The import of an Appendix-I species generally requires the issuance of both an import and export permit. Import permits for Appendix-I species are issued only if findings are made that the import would be for purposes that are not detrimental to the survival of the species and that the specimen will not be used for primarily commercial purposes (CITES Article III(3)). Export permits for Appendix-I species are issued only if findings are made that the specimen was legally acquired and trade is not detrimental to the survival of the species, and if the issuing authority is satisfied that an import permit has been granted for the specimen (CITES Article III(2)).

Straight-horned markhor in the Torghar Hills, and other subspecies of markhor within community-managed conservation areas in Pakistan, may be legally hunted and

exported. In 1997, at the 10th meeting of the Conference of the Parties to CITES, the Government of Pakistan submitted a proposal for approval of an annual export quota for sport-hunted markhor trophies to act as an incentive to communities to conserve markhor. During that same meeting, the Conference of the Parties approved an annual export quota of 6 sport-hunted markhor trophies for Pakistan (Resolution Conf. 10.15). Due to the success of conservation programs in Pakistan, CITES increased the annual export quota to 12 markhor in 2002, to further encourage community-based conservation (Ali 2008, p. 24; Resolution Conf. 10.15 (Rev. CoP 14)).

Furthermore, because the straight-horned markhor is listed as an Appendix-I species under CITES, legal international trade is very limited; most of the international trade in straight-horned markhor specimens consists of trophies and live animals. Data obtained from the United Nations Environment Programme—World Conservation Monitoring Center (UNEP–WCMC) CITES Trade Database show that from July 1975, when the straight-horned markhor was listed in Appendix I, through 2011, a total of 86 specimens were reported to UNEP-WCMC as (gross) exports. Of those 86 specimens, 40 were trophies, 45 were live animals, and 1 was a body. In analyzing these data, it appears that one record may be an over-count due to a slight difference in the manner in which the importing and exporting countries reported their trade. It is likely that the actual number of straight-horned markhor specimens in international trade during this period was 84, including 40 trophies, 43 live animals, and 1 body. Exports from range countries included: 39 trophies from Pakistan, 1 trophy from Afghanistan, and 1 body from Afghanistan. It should be noted that the straight-horned markhor trade data provided

above are based on reported trade to UNEP-WCMC in both the subspecies *Capra falconeri jerdoni* and the subspecies *Capra falconeri megaceros*. It should also be noted that the markhor at the species level (*Capra falconeri*) was transferred from CITES Appendix II to Appendix I in 1992, and since then, international trade was likely in some cases reported to UNEP-WCMC at the species level rather than the subspecies level. Therefore, it is possible that, between 1992 and 2011, some international trade in *Capra falconeri jerdoni* and *Capra falconeri megaceros* may have been reported to UNEP-WCMC at the species level. It was not possible to determine whether the trade reported at the species level represented trade in straight-horned markhor or trade in other markhor subspecies. Because there has been limited trade in straight-horned markhor, totaling 86 specimens over 37 years, we believe that international trade controlled via valid CITES permits is not a threat to the subspecies.

Habitat modification has also contributed to the decline of the straight-horned markhor. People living in rural areas heavily depend on natural resources; habitat throughout the range of the straight-horned markhor has been negatively impacted by domestic livestock overgrazing and deforestation from logging and collection of wood for fuel, charcoal, and building materials (Kanderian *et al.* 2011, pp. 281, 284, 287; WWF 2011, unpaginated; MAIL 2009, p. 5; UNEP 2009, p. 6; NEPA and UNEP 2008, p. 15; Valdez 2008, unpaginated; WWF 2008, unpaginated; Hess *et al.* 1997, p. 255; CITES 10.84 (Rev.) 1997, p. 895).

Much of the land where straight-horned markhor occur is owned by local tribes whose subsistence is largely dependent on keeping large herds of primarily sheep and goats. Livestock often exceed the carrying capacity of rangelands, leading to overgrazing, a halt to natural regeneration, and subsequent desertification of native vegetation. Overgrazing and competition with domestic livestock for forage is known to have resulted in the decline of wild ungulates and pushed their occurrence to range edges (WWF 2011, unpaginated; Frisina and Tareen 2009, pp. 145, 154; UNEP 2009, p. 8; NEPA and UNEP 2008, pp. 15–17; Valdez 2008, unpaginated; WWF 2008, unpaginated; Woodford *et al.* 2004, p. 180; Tareen 1990, p. 4; Mitchell 1989, pp. 4–5; Schaller and Khan 1975, p. 197).

Throughout the markhor's range, millions of displaced people and a high human population growth rate have created a tremendous demand for natural resources. Straight-horned markhor habitat and food sources are suffering significant declines due to illegal logging and collection of wood for building materials, fuel, and charcoal (Zahler 2013, pers. comm.; Smallwood *et al.* 2011, p. 507; WWF 2011, unpaginated; MAIL 2009, pp. 3, 5; UNEP 2009, p. 6; NEPA and UNEP 2008, pp. 15–16; Valdez 2008, unpaginated; WWF 2008, unpaginated; Hess *et al.* 1997, p. 255; Hasan and Ali 1992, pp. 8–9, 12–13).

Several Afghan and Pakistani laws protect wildlife and its habitat in these countries. Protected areas, such as national parks, sanctuaries, and game reserves may be designated under Afghanistan's Environmental Law, the BWPA, and the NWFPWA

(MAIL 2009, pp. 22–23; Aurangzaib and Pastakia 2008, pp. 58, 65–67; Environmental Law 2007, Articles 38, 39, 40, and 41; NWFPWA 1975, sections 15, 16, and 17).

However, no designated protected areas contain the straight-horned markhor.

Article 45 of Afghanistan’s Environmental Law dictates that grazing of livestock shall be managed and controlled by the Ministry of Agriculture, Animal Husbandry, and Food to minimize the impact on, and optimize use of, vegetation cover. Given that overgrazing of livestock is a wide-ranging threat to Afghanistan’s environment (UNEP 2009, p. 8; NEPA and UNEP 2008, pp. 15–17; Valdez 2008, unpaginated), it appears that the Environmental Law has not yet been effectively implemented. Also, Presidential Decree No. 405 and No. 736 prohibit the cutting of forests to preserve and maintain forests as a national asset. However, these decrees are unfamiliar to most Afghans or are ignored (MAIL 2009, pp. 5, 23).

In Balochistan, the Forest Act of 1927 allows for the creation of various classes of forests, the reservation of state-owned forest land, and for the provincial government to assume control of privately owned forest land and declare government-owned land to be a protected area. It also prohibits grazing, hunting, quarrying, and clearing land for cultivation; removal of forest produce; and the felling or lopping of trees and branches in reserved and protected forests (Aurangzaib and Pastakia 2008, p. 46). However, this law does not provide for sustainable use, conservation, or the protection of endangered wildlife within forests. Other legislation related to forests in Balochistan restricts subsistence use, but focuses on maximizing commercial exploitation. This may be

because these laws date back to the early 20th century and reflect priorities of that time. Provincial amendments have done little to alter the focus of these laws. Enforcement of forest laws is lacking, and where enforcement is possible, penalties are not severe enough to serve as a deterrent to violators. Furthermore, these laws may be overridden by other laws in favor of development and commercial uses (Aurangzaib and Pastakia 2008, pp. 42–43).

The Land Preservation Act of 1900 is a Punjab law that, by default, was applied to the Balochistan province shortly after its establishment in 1970. This law allows the government to prevent soil erosion and conserve sub-soil water. Activities such as clearing, breaking up, and cultivating land not ordinarily under cultivation; quarrying stone and burning lime; cutting trees and removing forest produce; setting fire to trees, timber, and forest produce; and herding and pasturing goats and sheep are prohibited. However, the government may permit inhabitants to carry out such activities (Aurangzaib and Pastakia 2008, p. 39).

In Khyber Pakhtunkhwa, the North-West Frontier Province Forest, Ordinance, 2002 (No. XIX of 2002) consolidates and amends the laws relating to protection, conservation, management, and sustainable development of the forests and natural resources of the province. It allows the government to declare forest land as a reserved forest (Forest Ordinance 2002, section 4). Within a reserved forest, it is illegal for a person to cultivate, clear, break up, or occupy any land; construct a building, road, enclosure, or any infrastructure, or alter or enlarge any such existing structures; trespass,

graze, browse or drive cattle; set fire, cut, fell, uproot, lop, tap, or burn any tree listed in Schedule I; quarry stone, burn lime or charcoal, or collect or remove forest produce; pollute; or hunt, shoot, fish, or set snares or traps (Forest Ordinance 2002, section 26). Given that deforestation is a widespread problem in Pakistan, it appears that this provincial law has not been effectively implemented.

Despite federal and provincial laws, declines in markhor populations and significant degradation of habitat have continued. Enforcement is lacking and very difficult to achieve due to the remoteness of many areas, the political situation in remote areas, conflicting policies, lack of understanding of the need and importance of conservation, and economic constraints (MAIL 2009, pp. 5, 23; UNEP 2009, pp. 4, 29; Aurangzaib and Pastakia 2008, pp. 39, 42–43; Hess *et al.* 1997, p. 243). Additionally, many of the areas where the straight-horned markhor occurs are on tribal lands, which are generally governed by tribal law, and Provincially Administered Tribal Areas where federal and provincial laws do not apply (Frisina and Tareen 2009, p. 144; Ahmed and Khazi 2008, pp. 13, 24; Aurangzaib and Pastakia 2008, p. 23; CITES 10.84 (Rev.) 1997, p. 895; Johnson 1994a, p. 1). In areas where existing laws are applicable, it does not appear that they have provided adequate protection given the severe declines in straight-horned markhor and threats the markhor continues to face from habitat loss and poaching.

Afghanistan and Pakistan are Parties to major multilateral treaties that address natural resource conservation and management (MAIL 2009, p. 32; Ahmed and Khazi 2008, p. 31). Among these are the Convention on Biological Diversity and the

Convention on Combating Desertification (MAIL 2009, p. 34; Ahmed and Khazi 2008, pp. 14, 31). In becoming a Party to these treaties, both countries assumed obligations to implement the treaties' provisions, which in many cases require legislation. However, participation in treaty activities or laws to implement obligations are lacking (MAIL 2009, pp. 32–33; Ahmed and Khazi 2008, pp. 14, 31; Aurangzaib and Pastakia 2008, pp. 65, 58). Therefore, these treaties do not provide adequate protections to ameliorate threats faced by the straight-horned markhor.

Although international, federal, and provincial laws do not appear to effectively provide protection to markhor habitat from overgrazing and deforestation, the TCP has taken steps to create better habitat for both markhor and domestic livestock.

In our August 7, 2012, proposed rule, we determined that key areas in the steeper, upland slopes and higher elevation of the Torghar Hills are not easily accessible and, therefore, are not impacted by human settlement or grazing pressure. However, we expressed concern that grazing pressure may increase in these upland areas due to a combination of drought conditions and the tradition of keeping large herds of domestic livestock. The lower slopes and valleys have been denuded of trees for livestock grazing and collection of fuel wood (Ahmed *et al.* 2001, pp. 3, 8; Frisina *et al.* 1998, pp. 9–10). Demand on these resources increases during the biannual migration of local and nearby tribes and their herds through the Torghar Hills (Woodford *et al.* 2004, p. 180; Ahmed *et al.* 2001, p. 4). As forage becomes limited in the lower slopes and valleys, due to drought

conditions and grazing pressure, domestic herds are likely to move to higher elevations in search of forage (Frisina *et al.* 2002, p. 13).

Recognizing that protecting markhor and its habitat can generate greater income for the community than relying solely on traditional livestock production, tribesmen of the Torghar Hills requested that the Society for Torghar Environmental Protection (STEP), the community-based, nongovernmental organization established to administer the TCP, integrate habitat management measures to protect markhor and create better habitat for both markhor and their domestic animals.

A habitat management plan was developed in 2001. The plan emphasizes range management, improved agriculture, and water storage projects to improve habitat conditions, and reduce grazing pressure, eliminate the need for domestic herds to utilize upper slope areas, and, therefore, reduce interactions between domestic livestock and markhor around forage and water resources (Frisina and Tareen 2009, p. 152; Woodford *et al.* 2004, pp. 180, 184; Frisina *et al.* 2002, pp. 3, 8, 16; Ahmed *et al.* 2001, pp. 7, 11). Additionally, STEP plans to plant woodlots of indigenous trees to meet the fuel wood and timber requirements of the local tribes and develop orchards and croplands. Agriculture is seen as an alternative to raising livestock, thus reducing grazing pressure (Frisina and Tareen 2009, p. 152; Ahmed *et al.* 2001, p. 11). The STEP will also train locals in livestock management and agricultural practices (Frisina and Tareen 2009, p. 152).

Although we do not know the extent to which the different stages of the management plans described above have been implemented, we have received new information on the markhor and its habitat in the TCP. Frisina and Rasheed (2012, p. 8) concluded from the 2011 population surveys in the TCP that the markhor population and its habitat are secure under the current management scenario.

Disease transmission was identified as a potential threat to the Torghar Hills straight-horned markhor in our August 7, 2012, proposed rule. The potential for disease transmission stems from livestock–wildlife interactions due to overgrazing by large herds of livestock, drought conditions, and the migration of flocks through the Torghar Hills. The risk of transmission was linked to future and continued habitat and livestock management. The risk of disease transmission is particularly severe if large numbers of domestic livestock are present during periods of drought. During these circumstances, resources are limited and interactions would be more frequent around available water sources and in the vegetated upper slopes. Additionally, there were concerns that interactions would likely increase in the TCP if domestic livestock herds grew and the markhor population expanded (Woodford *et al.* 2004, p. 183).

In addition to implementing measures to improve habitat conditions at lower elevations, eliminating the need for domestic herds to utilize upper slope areas, and thereby, reduce interactions between domestic livestock and markhor around forage and water resources, STEP has discussed the establishment of a community-based Animal Health Service; the herdsmen within the TCP have agreed to this measure. As it is not

feasible to vaccinate markhor in mountainous terrain, STEP will train and equip tribesmen to act as “barefoot vets” with the responsibility of vaccinating domestic sheep and goats, and administering appropriate anthelmintics (drugs that expel parasitic worms) as they travel through the TCP. Veterinary care will be effective only if range and livestock management plans are implemented, and have the potential to result in smaller, healthier domestic livestock herds (Woodford *et al.* 2004, p. 185).

Currently, there is no evidence of disease transmission between livestock and markhor (Woodford *et al.* 2004, p. 184; Frisina *et al.* 2002, p. 13). The plans developed by STEP to improve habitat for markhor also lowers the risk of disease transmission by addressing livestock management and minimizing interactions between domestic livestock and wildlife. With these actions, coupled with the planned Animal Health Service, the risk of diseases being transferred from domestic livestock to markhor is significantly reduced. Although we do not know the status of the habitat management plans or the Animal Health Service, Frisina and Rasheed (2012, p. 8) concluded from the 2011 population surveys in the TCP that the markhor population and domestic livestock have minimal range-use overlap, and the markhor’s habitat is secure under the current management scenario. Therefore, we have no information that indicates that disease transmission is a current threat to the Torghar Hills markhor. However, because the larger Torghar Hills population is within an area that heavily relies on domestic livestock for subsistence, it is more likely to interact with domestic sheep and goats than the other populations. In the event of a disease outbreak, the Torghar Hills population would be particularly vulnerable. Because the other extant populations are critically low,

declining, and continue to face threats from poaching and habitat loss, the single population in the Torghar Hills will not provide a sufficient enough margin of safety for the subspecies to withstand this type of catastrophic event.

In the rest of the straight-horned markhor's range, we have no information on the occurrence of disease or the risk of disease transmission from domestic sheep and goats. Overgrazing of domestic livestock has contributed to habitat loss in other mountain ranges, suggesting large livestock herds have also been maintained in these areas, but we do not have information on herd size or the likelihood of livestock–wildlife interactions. Given the extremely small population estimates of straight-horned markhor outside of the Torghar Hills, it may be that interactions are rare.

We found no information indicating that the current threats to the straight-horned markhor, as described above, are likely to improve in the future. Threats to this subspecies are driven by past and current conflict, the needs of millions of displaced people, and an expanding human population. Current regulatory mechanisms in place to protect the markhor and its habitat are not being implemented effectively in most of the range to reduce or remove threats to the subspecies. With the exception of the Torghar Hills, no other management plans are in place to specifically address the straight-horned markhor. Therefore, the tremendous pressure put on natural resources, and the impacts to the straight-horned markhor and its habitat, will likely continue unless the natural resources of Afghanistan and Pakistan are effectively protected.

In the Torgar Hills, the TCP has eliminated poaching of straight-horned markhor and managed the habitat such that the population has steadily increased since the TCP's inception and both the population and its habitat are currently secure. Because the TCP has incorporated economic incentives for the local community and is supported by the community, we believe the protections and management provided by the TCP will continue.

The narrow geographic range of the straight-horned markhor and the small, scattered, and declining populations make this subspecies particularly vulnerable to threats and more susceptible to extinction. Furthermore, small scattered populations may experience decreased demographic viability and increased susceptibility to extinction from stochastic environmental factors (e.g., weather events, disease) and an increased threat of extinction from genetic isolation and subsequent inbreeding depression and genetic drift. Although the Torgar Hills population is subject to a management plan, and the protections provided by that management plan has led to an increasing population, a single stable population does not provide a sufficient margin of safety for the subspecies to withstand effects from catastrophic events, such as disease.

Finding

Section 4 of the Act (16 U.S.C. 1533) and implementing regulations (50 CFR part 424) set forth procedures for adding species to, removing species from, or reclassifying species on the Federal Lists of Endangered and Threatened Wildlife and Plants. Under

section 4(a)(1) of the Act, a species may be determined to be endangered or threatened based on any of the following five factors:

- A. The present or threatened destruction, modification, or curtailment of its habitat or range;
- B. Overutilization for commercial, recreational, scientific, or educational purposes;
- C. Disease or predation;
- D. The inadequacy of existing regulatory mechanisms; or
- E. Other natural or manmade factors affecting its continued existence.

In considering whether a species may warrant listing under any of the five factors, we look beyond the species' exposure to a potential threat or aggregation of threats under any of the factors, and evaluate whether the species responds to those potential threats in a way that causes actual impact to the species. The identification of threats that might impact a species negatively may not be sufficient to compel a finding that the species warrants listing. The information must include evidence indicating that the threats are operative and, either singly or in aggregation, affect the status of the species. Threats are significant if they drive, or contribute to, the risk of extinction of the species, such that the species warrants listing as endangered or threatened, as those terms are defined in the Act.

As required by the Act, we conducted a review of the status of the subspecies and considered the five factors in assessing whether the straight-horned markhor is endangered or threatened throughout all or a significant portion of its range. We

examined the best scientific and commercial information available regarding the past, present, and future threats faced by the straight-horned markhor. We reviewed the 1999 petition submitted by the Society for Torghar Environmental Protection and IUCN, the 2010 petition submitted by Conservation Force, information available in our files, other available published and unpublished information, and information received in response to the August 7, 2012, proposed rule.

Today, the straight-horned markhor occurs in small, scattered populations in the mountains of Balochistan and Khyber Pakhtunkhwa provinces, Pakistan. Although there are reports that this subspecies survives in Afghanistan, it has likely been extirpated. In general, markhor populations are reported as declining and have likely not increased since 1975. However, there is one exception to this declining population trend, the Torghar Hills population in the Toba Kakar Range. Due to the implementation of a conservation plan, the Torghar Hills population has increased from fewer than 200 in the mid-1980s to 3,518 currently.

Straight-horned markhor have been significantly impacted by years of conflict and the accompanying influx of sophisticated weapons. Easy access to accurate weapons and millions of displaced people dependent on wild meat for subsistence led to excessive hunting and the extirpation of straight-horned markhor from much of its former range and a severe reduction in remaining populations. Additionally, tremendous pressure has been placed on natural resources from millions of displaced people and an expanding human population. Deforestation for livestock grazing, illegal logging, and collection of wood

for building materials, fuel, and charcoal, to meet the needs of the growing population, continues to impact straight-horned markhor habitat.

Several federal and provincial laws are in place to provide some protection to natural resources, but they are subject to broad exemptions, allowing for overriding laws favoring development and commercial use, and enforcement is lacking. However, in the Torghar Hills, the population of straight-horned markhor and its habitat have been effectively managed by the TCP such that both are secure under the current management scenario. Due to the establishment of the TCP, the cessation of uncontrolled poaching, and the hunting of only a limited number of trophies in the Torghar Hills, the population has increased substantially since TCP's inception in 1985. Furthermore, due to the TCP, straight-horned markhor habitat is secure and is no longer impacted by overgrazing or collection of wood. Because the TCP has incorporated economic incentives for the local community and is supported by the community, we believe the protections and management provided by the TCP will continue in the foreseeable future. We are not aware of other populations of straight-horned markhor under the same level of management. Information indicates that hunting and habitat loss remain as threats in the rest of the straight-horned markhor's range; without effective and enforcement of federal and provincial laws, we believe these threats will continue into the foreseeable future.

Section 3 of the Act defines an "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range," and a "threatened species" as "any species which is likely to become an endangered species

within the foreseeable future throughout all or a significant portion of its range.” Most of the straight-horned markhor populations are small and declining. Threats to this subspecies from hunting and habitat loss still exist and will likely continue into the foreseeable future. Current regulatory mechanisms are inadequate to ameliorate the negative effects of these threats on the subspecies and will likely remain ineffective until changes in implementation are made. Therefore, we expect that most straight-horned populations will continue to decline into the foreseeable future.

However, although most remaining populations of straight-horned markhor are critically low, continue to face threats from overhunting and habitat loss, and will likely continue to decline, implementation of the TCP has eliminated threats from hunting and habitat loss in the Torghar Hills. This population has continued to increase since the inception of the TCP and, today, is the only stronghold of the species.

Furthermore, because of the protective measures provided to the Torghar Hills population by the TCP, we believe that the threats identified under Factors A, B, and D are not of sufficient imminence, intensity, or magnitude to indicate that the subspecies is presently in danger of extinction, and, therefore, does not meet the definition of endangered under the Act. However, the straight-horned markhor occupies a narrow geographic range and threats acting on those critically low populations are likely to continue in the foreseeable future. A single stable population does not provide a sufficient margin of safety for the subspecies to withstand effects from catastrophic events (e.g., disease). These factors indicate that the straight-horned markhor continues

to be at risk of extinction and will likely become in danger of extinction in the foreseeable future due to those continuing threats. Therefore, on the basis of the best scientific and commercial information, we find that the straight-horned markhor meets the definition of a “threatened species” under the Act, and we are proposing to list the straight-horned markhor as threatened in its entirety.

Distinct Vertebrate Population Segment

Section 3(16) of the Act defines “species” to include any species or subspecies of fish and wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature (16 U.S.C. 1532(16)). Under the Service’s “Policy Regarding the Recognition of Distinct Vertebrate Population Segments Under the Endangered Species Act” (61 FR 4722, February 7, 1996), three elements are considered in the decision concerning the establishment and classification of a possible distinct population segment (DPS). These elements, which are applied similarly for additions to or removals from the Federal List of Endangered and Threatened Wildlife, include:

- (1) The discreteness of a population in relation to the remainder of the species to which it belongs;
- (2) The significance of the population segment to the species to which it belongs; and
- (3) The population segment’s conservation status in relation to the Act’s standards for listing, delisting, or reclassification (i.e., is the population segment endangered or threatened?).

Discreteness

Under the DPS policy, a population segment of a vertebrate taxon may be considered discrete if it satisfies either one of the following conditions:

- (1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation.
- (2) It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act.

We reviewed available information to determine whether any population, including the Torghar Hills population, of the straight-horned markhor meets the first discreteness condition of our 1996 DPS policy. We found no evidence that any population was markedly separated from other markhor populations as a consequence of physical, physiological, ecological, or behavioral factors. Additionally, we are not aware of measures of genetic or morphological discontinuity that provide evidence of marked separation. With respect to Torghar Hills, the boundaries are unclear and appear to grade into other ranges within the Toba Kakar Mountains. Additionally, Johnson (1994b, p. 15) noted that, if the Torghar Hills population reaches carrying capacity, it could become a source of emigrants for other mountain ranges in the area and that intermountain movement is probably already taking place. Since that publication, the Torghar Hills population has increased from 695 markhor to 3,518, indicating a greater likelihood that

intermountain movement of markhor will or is already taking place. We currently do not know the extent, if any, that markhor are moving from the Torghar Hills into other mountain ranges; however, it appears that they could. Movement may require markhor to cross unsuitable habitat (e.g., the TCP is surrounded by less severe topography and valleys typically not preferred by markhor), but there is no reason that they could not cross, especially if carrying capacity is met, thereby creating a need to emigrate to other suitable areas in adjacent ranges. Therefore, without evidence of marked separation, we determine that none of the populations of the straight-horned markhor meet the first discreteness condition of the 1996 DPS policy.

We next evaluated whether any of the straight-horned markhor populations meet the second discreteness condition of our 1996 DPS policy. A population segment may be considered discrete if it is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act. Although the straight-horned markhor is reported to occur in Afghanistan, it has likely been extirpated. Additionally, we found no significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms in Afghanistan and Pakistan; therefore, none of the populations of the straight-horned markhor meet the second discreteness condition of the 1996 DPS policy.

We determine, based on a review of the best available information, that none of the populations of the straight-horned markhor, including the Torghar Hills population,

meet the discreteness conditions of the 1996 DPS policy. Because we found that the straight-horned markhor populations do not meet the discreteness element under the Service's DPS policy, we need not conduct an evaluation of significance under that policy. We conclude that none of the straight-horned markhor populations qualify as a DPS under the Act.

Significant Portion of the Range

Having determined that the straight-horned markhor meets the definition of threatened throughout its range, we must next consider whether the straight-horned markhor is in danger of extinction within a significant portion of its range.

The Act defines "endangered species" as any species which is "in danger of extinction throughout all or a significant portion of its range," and "threatened species" as any species which is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." The phrase "significant portion of its range" (SPR) is not defined by the statute, and we have never addressed in our regulations either: (1) The consequences of a determination that a species is either endangered or likely to become so throughout a significant portion of its range, but not throughout all of its range; or (2) what qualifies a portion of a range as "significant."

For the purposes of this finding, we interpret the phrase "significant portion of its range" in the Act's definitions of "endangered species" and "threatened species" to

provide an independent basis for listing; thus there are two situations (or factual bases) under which a species would qualify for listing: a species may be endangered or threatened throughout all of its range; or a species may be endangered or threatened in only a significant portion of its range. If a species is in danger of extinction throughout an SPR, then that species is an “endangered species.” The same analysis applies to “threatened species.” Based on this interpretation and supported by existing case law, the consequence of finding that a species is endangered or threatened in only a significant portion of its range is that the entire species will be listed as endangered or threatened, respectively, and the Act’s protections will be applied across the species’ entire range.

We conclude, for the purposes of this finding, that interpreting the SPR phrase as providing an independent basis for listing is the best interpretation of the Act because it is consistent with the purposes and the plain meaning of the key definitions of the Act; it does not conflict with established past agency practice, as no consistent, long-term agency practice has been established; and it is consistent with the judicial opinions that have most closely examined this issue. Having concluded that the phrase “significant portion of its range” provides an independent basis for listing and protecting the entire species, we next turn to the meaning of “significant” to determine the threshold for when such an independent basis for listing exists.

Although there are potentially many ways to determine whether a portion of a species’ range is “significant,” we conclude, for the purposes of this finding, that the significance of the portion of the range should be determined based on its biological

contribution to the conservation of the species. For this reason, we describe the threshold for “significant” in terms of an increase in the risk of extinction for the species. We conclude that a biologically based definition of “significant” best conforms to the purposes of the Act, is consistent with judicial interpretations, and best ensures species’ conservation. Thus, for the purposes of this finding, and as explained further below, a portion of the range of a species is “significant” if its contribution to the viability of the species is so important that without that portion, the species would be in danger of extinction.

We evaluate biological significance based on the principles of conservation biology using the concepts of redundancy, resiliency, and representation. *Resiliency* describes the characteristics of a species and its habitat that allow it to recover from periodic disturbance. *Redundancy* (having multiple populations distributed across the landscape) may be needed to provide a margin of safety for the species to withstand catastrophic events. *Representation* (the range of variation found in a species) ensures that the species’ adaptive capabilities are conserved. Redundancy, resiliency, and representation are not independent of each other, and some characteristic of a species or area may contribute to all three. For example, distribution across a wide variety of habitat types is an indicator of representation, but it may also indicate a broad geographic distribution contributing to redundancy (decreasing the chance that any one event affects the entire species), and the likelihood that some habitat types are less susceptible to certain threats, contributing to resiliency (the ability of the species to recover from disturbance). None of these concepts is intended to be mutually exclusive, and a portion

of a species' range may be determined to be "significant" due to its contributions under any one or more of these concepts.

For the purposes of this finding, we determine whether a portion qualifies as "significant" by asking whether *without that portion*, the representation, redundancy, or resiliency of the species would be so impaired that the species would have an increased vulnerability to threats to the point that the overall species would be in danger of extinction (i.e., would be "endangered"). Conversely, we would not consider the portion of the range at issue to be "significant" if there is sufficient resiliency, redundancy, and representation elsewhere in the species' range that the species would not be in danger of extinction throughout its range if the population in that portion of the range in question became extirpated (extinct locally).

We recognize that this definition of "significant" (a portion of the range of a species is "significant" if its contribution to the viability of the species is so important that without that portion, the species would be in danger of extinction) establishes a threshold that is relatively high. On the one hand, given that the consequences of finding a species to be endangered or threatened in an SPR would be listing the species throughout its entire range, it is important to use a threshold for "significant" that is robust. It would not be meaningful or appropriate to establish a very low threshold whereby a portion of the range can be considered "significant" even if only a negligible increase in extinction risk would result from its loss. Because nearly any portion of a species' range can be said to contribute some increment to a species' viability, use of

such a low threshold would require us to impose restrictions and expend conservation resources disproportionately to conservation benefit: listing would be rangewide, even if only a portion of the range of minor conservation importance to the species is imperiled. On the other hand, it would be inappropriate to establish a threshold for “significant” that is too high. This would be the case if the standard were, for example, that a portion of the range can be considered “significant” only if threats in that portion result in the entire species’ being currently endangered or threatened. Such a high bar would not give the SPR phrase independent meaning, as the Ninth Circuit held in *Defenders of Wildlife v. Norton*, 258 F.3d 1136 (9th Cir. 2001).

The definition of “significant” used in this finding carefully balances these concerns. By setting a relatively high threshold, we minimize the degree to which restrictions will be imposed or resources expended that do not contribute substantially to species conservation. But we have not set the threshold so high that the phrase “in a significant portion of its range” loses independent meaning. Specifically, we have not set the threshold as high as it was under the interpretation presented by the Service in the *Defenders* litigation. Under that interpretation, the portion of the range would have to be so important that current imperilment there would mean that the species would be *currently* imperiled everywhere. Under the definition of “significant” used in this finding, the portion of the range need not rise to such an exceptionally high level of biological significance. (We recognize that if the species is imperiled in a portion that rises to that level of biological significance, then we should conclude that the species is in fact imperiled throughout all of its range, and that we would not need to rely on the SPR

language for such a listing.) Rather, under this interpretation we ask whether the species would be endangered everywhere without that portion, *i.e.*, if that portion were completely extirpated. In other words, the portion of the range need not be so important that even the species being in danger of extinction in that portion would be sufficient to cause the species in the remainder of the range to be endangered; rather, the *complete extirpation* (in a hypothetical future) of the species in that portion would be required to cause the species in the remainder of the range to be endangered.

The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that have no reasonable potential to be significant or to analyzing portions of the range in which there is no reasonable potential for the species to be endangered or threatened. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that: (1) The portions may be “significant,” *and* (2) the species may be in danger of extinction there or likely to become so within the foreseeable future. Depending on the biology of the species, its range, and the threats it faces, it might be more efficient for us to address the significance question first or the status question first. Thus, if we determine that a portion of the range is not “significant,” we do not need to determine whether the species is endangered or threatened there; if we determine that the species is not endangered or threatened in a portion of its range, we do not need to determine if that portion is “significant.” In practice, a key part of the determination that a species is in danger of extinction in a significant portion of its range is whether the threats are geographically concentrated in some way. If the threats to the

species are essentially uniform throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats to the species occurs only in portions of the species' range that clearly would not meet the biologically based definition of "significant," such portions will not warrant further consideration.

After reviewing the potential threats throughout the range of the straight-horned markhor, we find that threats appear to be affecting the subspecies in the portion of the range outside of the Torghar Hills more severely, particularly with respect to overhunting. Applying the process described above for determining whether this subspecies is endangered in a significant portion of its range, we consider significance first to determine if this portion of the straight-horned markhor's range warrants further consideration.

As stated above, a portion of the range of a species is "significant" if its contribution to the viability of the species is so important that, without that portion, the species would be in danger of extinction rangewide. We find that if there was a loss of the straight-horned markhor populations outside of the Torghar Hills, the remaining population in the Torghar Hills would not be in danger of extinction. The Torghar Hills population, under the management of the TCP, has been steadily increasing since the inception of the TCP in 1985. Poaching, the greatest cause of substantial markhor declines, has been virtually eliminated in the Torghar Hills. Furthermore, the straight-horned markhor and its habitat are stable under the current management. Given the level of the abundance and protection within Torghar Hills as a result of management under the

TCP, we find that this population would continue to persist, despite the hypothetical loss of the range outside of Torghar Hills. In contrast, based on the information available, the populations outside of Torghar Hills are small and fragmented. We have no information to suggest that habitat for populations outside of Torghar Hills is optimal, and, instead, the information suggests that these populations likely exist on lands that are subject to overgrazing by domestic livestock, which is the dominant land use and the primary means of subsistence for local tribes. Therefore, the portion of the range outside of the Torghar Hills does not meet the definition of “significant” and does not warrant further consideration.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, requirements for Federal protection in the United States, and prohibitions against certain practices. Recognition through listing results in public awareness, and encourages and results in conservation actions by Federal and State governments in the United States, foreign governments, private agencies and groups, and individuals.

Section 7(a) of the Act, as amended, and as implemented by regulations at 50 CFR part 402, requires Federal agencies to evaluate their actions within the United States or on the high seas with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. However,

given that the straight-horned markhor is not native to the United States, we are not designating critical habitat for this species under section 4 of the Act.

Section 8(a) of the Act authorizes the provision of limited financial assistance for the development and management of programs that the Secretary of the Interior determines to be necessary or useful for the conservation of endangered and threatened species in foreign countries. Sections 8(b) and 8(c) of the Act authorize the Secretary to encourage conservation programs for foreign endangered species and to provide assistance for such programs in the form of personnel and the training of personnel.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. These prohibitions, at 50 CFR 17.21 and 17.31, in part, make it illegal for any person subject to the jurisdiction of the United States to “take” (take includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt any of these) within the United States or upon the high seas; import or export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any endangered or threatened wildlife species. It also is illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken in violation of the Act. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 for endangered species and 17.32 for threatened species. For endangered wildlife, a permit may be issued for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities. For threatened species, a permit may be issued for the same activities, as well as zoological exhibition, education, and special purposes consistent with the Act.

Special Rule

Section 4(d) of the Act states that the Secretary may, by regulation, extend to threatened species prohibitions provided for endangered species under section 9 of the Act. Our implementing regulations for threatened wildlife (50 CFR 17.31) incorporate the section 9 prohibitions for endangered wildlife, except when a special rule is promulgated. For threatened species, section 4(d) of the Act gives the Secretary discretion to specify the prohibitions and any exceptions to those prohibitions that are appropriate for the species, and provisions that are necessary and advisable to provide for the conservation of the species. A special rule allows us to include provisions that are tailored to the specific conservation needs of the threatened species and which may be more or less restrictive than the general provisions at 50 CFR 17.31.

The Service recognizes that there is a reasonable argument for the proposition that controlled sport hunting (i.e., noncommercial) may provide economic incentives that contribute to the conservation of certain wildlife populations. These incentives may be direct, such as generating funding for essential conservation measures through licensing fees. They may also be indirect, such as focusing governmental attention on the need to protect species of economic value.

Well-managed conservation programs, including those that incorporate sport hunting, can significantly contribute to the conservation of wildlife, improve wildlife populations, and greatly enhance the livelihoods of the local people. The primary objective of a well-managed trophy-hunting program is not hunting, but the conservation of large mammals (Shackleton 2001, p. 7). The key lies in ensuring a sufficient number of mature males remain in the population to maintain normal reproduction rates. For species with polygynous mating systems, removing some of the males from a population does not necessarily affect the growth rate of the population. If a fraction of the mature trophy males are removed, normal reproduction can be maintained and any long-term genetic impacts from removing “genetically superior” individuals from a population can be minimized (Shackleton 2001, p. 10).

Many hunters are willing to pay relatively large fees for the privilege to hunt. If the money is used to conserve the species that is the focus of the conservation program, the program may be sustainable. Additionally, habitat restoration may also be achieved.

Incorporating the needs of the local people creates an incentive to conserve wildlife and ensures the success of the program (Shackleton 2001, pp. 7, 10).

In recognizing the potential of conservation programs, including those based on sport hunting, we are proposing a special rule to allow the import of sport-hunted markhor trophies taken from established conservation programs without a threatened species permit issued under 50 CFR 17.32, provided that certain criteria are met. Importation of a personal sport-hunted straight-horned markhor may be authorized by the Director of the U.S. Fish and Wildlife Service (Director) without a threatened species permit if the trophy is taken from a conservation program that meets the following criteria: (1) Populations of straight-horned markhor within the conservation program's areas can be shown to be sufficiently large to sustain sport-hunting and the populations are stable or increasing; (2) regulating authorities have the capacity to obtain sound data on populations; (3) the conservation program can demonstrate a benefit to both the communities surrounding or within the area managed by the conservation program and the species, and the funds derived from sport hunting are applied toward benefits to the community and the species; (4) regulating authorities have the legal and practical capacity to provide for the long-term survival of the populations; (5) regulating authorities can determine that the trophies have in fact been legally taken from the populations under an established conservation program. The Director may, consistent with the purposes of the Act, authorize by publication of a notice in the **Federal Register** the importation of personal sport-hunted straight-horned markhor, taken legally from the

established conservation program after the date of such notice, without a threatened species permit, provided that the applicable provisions of 50 CFR part 23 have been met.

As discussed above, hunting of markhor is allowed through a Pakistani Government exemption, and export of markhor in Pakistan is allowed only from community-managed conservation areas in accordance with CITES provisions. To encourage communities to conserve populations of markhor, the Conference of the Parties to CITES granted Pakistan an annual export quota of 12 markhor sport-hunted trophies taken through community-based programs. CITES Resolution Conf. 10.15 (Rev. CoP 14) recommends that CITES Authorities in the State of import approve permits of sport-hunted markhor trophies from Pakistan if they meet the terms of the Resolution. This proposed special rule, if made final, would similarly facilitate support for these conservation programs. Therefore, we find this special rule would provide necessary and advisable conservation measures that are needed for this subspecies.

Peer Review

In accordance with our policy, “Notice of Interagency Cooperative Policy for Peer Review in Endangered Species Act Activities,” that was published on July 1, 1994 (59 FR 34270), we will seek the expert opinion of at least three appropriate independent specialists regarding this proposed rule. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analysis. We will send copies of this proposed rule to the peer reviewers immediately following publication in

the **Federal Register**. We will invite these peer reviewers to comment, during the public comment period, on the specific assumptions and the data that are the basis for our conclusions regarding the proposal to reclassify the straight-horned markhor as threatened under the Act and to promulgate the proposed special rule.

We will consider all comments and information we receive during the comment period on this proposed rule during preparation of a final rulemaking. Accordingly, our final decision may differ from this proposal.

Required Determinations

Clarity of Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (a) Be logically organized;
- (b) Use the active voice to address readers directly;
- (c) Use clear language rather than jargon;
- (d) Be divided into short sections and sentences; and
- (e) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments

should be as specific as possible. For example, you should tell us the names of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

We have determined that we do not need to prepare an environmental assessment, as defined under the authority of the National Environmental Policy Act of 1969, in connection with regulations adopted under section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

References Cited

A list of all references cited in this document is available at <http://www.regulations.gov> at Docket No. FWS–R9–ES–2011–0003, or upon request from the U.S. Fish and Wildlife Service, Endangered Species Program, Branch of Foreign Species (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposed rule are staff members of the Branch of Foreign Species, Endangered Species Program, U.S. Fish and Wildlife Service.

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to further amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as amended at 77 FR 47011 (August 7, 2012), as set forth below:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; 4201–4245; unless otherwise noted.

2. Amend § 17.11(h) by removing the entry for “Markhor, Kabul” and revising the entry for “Markhor, straight-horned” in the List of Endangered and Threatened Wildlife to read as follows:

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Mammals	*	*	*	*	*	*	
Markhor, straight-horned	<i>Capra falconeri megaceros</i>	Afghanistan, Pakistan	Entire	T	15,	NA	17.40(a)
*	*	*	*	*	*	*	

3. Amend § 17.40 by adding a new paragraph (a) to read as follows:

§ 17.40 Special rules—mammals.

(a) Straight-horned markhor (*Capra falconeri megaceros*).

(1) *General requirements.* Except as noted in paragraph (a)(2) of this section, all prohibitions of §17.31 of this part and exemptions of §17.32 of this part apply to this subspecies.

(2) *What are the criteria under which a personal sport-hunted trophy may qualify for import without a permit under § 17.32 of this part?* If, upon receiving information on an established conservation program for straight-horned markhor:

(i) Populations of straight-horned markhor within the conservation program's areas can be shown to be sufficiently large to sustain sport hunting and are stable or increasing;

(ii) Regulating authorities have the capacity to obtain sound data on populations;

(iii) The conservation program can demonstrate a benefit to both the communities surrounding or within the area managed by the conservation program and the species; and the funds derived from sport hunting are applied toward benefits to the community and the species;

(iv) Regulating authorities have the legal and practical capacity to provide for the long-term survival of the populations; and

(v) Regulating authorities can determine that the sport-hunted trophies have in fact been legally taken from the populations under an established conservation program, the Director may, consistent with the purposes of the Act, authorize by publication of a

notice in the **Federal Register** the importation of personal sport-hunted straight-horned markhor, taken legally from the established program after the date of such notice, without a Threatened Species permit issued under § 17.32 of this part, provided that the applicable provisions of 50 CFR part 23 have been met.

* * * * *

Dated: November 19, 2013.

Stephen Guertin,

Acting Director, U.S. Fish and Wildlife Service.

Billing Code 4310-55-P

