

ENHANCEMENT REQUIREMENTS – P. L. MELANOCHAITA

Effective January 22, 2016, in a Final Rule, the U.S. Fish and Wildlife Service listed the African lion under the Endangered Species Act. The *P.l. leo* subspecies is listed as endangered and the *P.l. melanochaita* subspecies is listed as threatened with a special rule governing import of lion parts, including hunting trophies.

In a section discussing this special rule, FWS listed the general issuance criteria for threatened species permits and then listed specific criteria that FWS will consider in evaluating if a country's lion management program "enhances the survival of the species," such that an import permit would be authorized. 80 Fed. Reg. 80000, 80046 (Dec. 23, 2015):

- "how a country's management program for lions addresses the three main threats have led to the decline of the subspecies: Habitat loss, loss of prey base, and human-lion conflict
- whether the program is based on sound scientific information and identifies mechanisms that would arrest the loss of habitat or increase available habitat (i.e., by establishing protected areas and ensuring adequate protection from human encroachment
- whether the management program actively address the loss of the lion's prey base by addressing [bushmeat] poaching or unsustainable offtake within the country
- whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions
- whether hunting concessions / tracts are managed to ensure the long-term survival of the lion, its prey base, and habitat
- if the trophy hunting provides financial assistance to the wildlife department to carry out elements of the management program
- if there is a compensation scheme or other incentives to benefit communities that may be impacted by lion predation
- how a U.S. hunter's participation in the hunting program contributes to the overall management of lions within a country
- [m]anagement programs ... would be expected to address, but are not limited to: evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation"

How can a range nation evidence these criteria? Going back through the sections of the Final Rule, FWS identifies best practices and criticizes some practices. I took the criteria identified by FWS and used them to organize examples of best practices given in the Final Rule which could demonstrate that a range nation appropriately manages its lion population.

It is crucial to note that a range nation's lion management program must fulfill FWS' criteria from p. 80046 (quoted above), but does **not** need to incorporate all best practices identified in the tables below. These are just examples of what a range nation could do. There are surely more examples in the literature, and there may be regional strategies that would satisfy FWS but which FWS did not mention in the Final Rule. However, it seems that since FWS identified the best practices below as indicative of a well-managed lion conservation and sustainable use program, the more boxes a country can check below, the more likely it would be that lion trophies could be imported from that country. These are not

The first table below lists the specific criteria identified by FWS, then lists best practices that may satisfy each of the criteria. The second table is a more detailed version. It identifies representative references FWS cites (in case one wished to obtain additional information about the practice from the source), and lists any countries that FWS identifies as already complying with the practice or as not currently complying with the practice. The third table adds criteria from the Proposed Rule, 79 Fed. Reg. 64472 (Oct. 29, 2014). Although these are not binding, FWS could consider them in making an enhancement finding, as it has already defined and described them in the Proposed Rule.

Again, all of these boxes do not need to be checked for a country to demonstrate enhancement. These are possible examples for how enhancement may be shown. Similar or comparable practices could also satisfy the general FWS criteria.

Table 1

Lion Management Criteria 1:

- “whether the program is based on sound scientific information and identifies mechanisms that would arrest the loss of habitat or increase available habitat (i.e., by establishing protected areas and ensuring adequate protection from human encroachment”

#	Practices	Page(s)
1	Hunting revenue is used to “build and maintain fences, provide security personnel with weapons and vehicles, provide resources for anti-poaching activities, and provide[] resources for habitat acquisition and management”	80018
2	Efforts are made to encourage habitat connectivity and development of buffer zones around protected areas (which in turn encourages dispersal and genetic viability)	80018, 80034, 80036
3	Community incentives are strong enough to encourage development of wildlife/game management areas	80017, 80035
4	Appropriate efforts are made to reduce human encroachment into protected areas	80034
5	The national lion management plan is based on scientifically sound data; the plan is being implemented to address threats facing lion within that country; and the plan’s implementation is tracked and documented	80054

Lion Management Criteria 2:

- “whether the management program actively address the loss of the lion’s prey base by addressing [bushmeat] poaching or unsustainable offtake within the country”

#	Practices	Page(s)
1	Laws against bushmeat poaching are consistently enforced	80011
2	Penalties for bushmeat poaching are deterrent	80011
3	Hunting program is science-based and adaptively managed	80019-21
4	Hunting operators assist in reducing human-wildlife conflict and retaliatory killing by helping avoid depredation	80012

Lion Management Criteria 3:

- “whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions”

#	Practices	Page(s)
1	Communities are given rights over land to conservation wildlife	80011, 80035
2	Communities develop alternate industries to reduce their dependence on bushmeat	80035
3	Communities “assist in the management of protected areas,” which gives them “a direct stake in the management of wildlife areas” and opens some economic opportunities	80035

Lion Management Criteria 4:

- “whether hunting concessions / tracts are managed to ensure the long-term survival of the lion, its prey base, and habitat”

#	Practices	Page(s)
1	Hunting concessions are allocated after considering the “operator’s track record in conservation”	80022
2	Hunting concessions are allocated according to a “fully transparent system” that allows international “hunters to choose operators who have demonstrated a commitment to conservation principles” and which “provide[s] incentives for operators to comply with the recommended best practices”	80020

Lion Management Criteria 5:

- “if the trophy hunting provides financial assistance to the wildlife department to carry out elements of the management program”

#	Practices	Page(s)
1	Hunting revenue accrues to the wildlife authority for management activities	80018, 80051, 80054
2	The wildlife authority’s budgeting and spending is transparent	80019-20

Lion Management Criteria 6:

- “if there is a compensation scheme or other incentives to benefit communities that may be impacted by lion predation”

#	Practices	Page(s)
1	Community compensation and benefits sharing is transparent	80018
2	Community benefits are incorporated into a country’s hunting regulations, land management policies, and lion conservation action plans and National Poverty Reduction Strategies	80018
3	Communities actually receive a significant share of revenues from non-consumptive and consumptive uses of wildlife, rather than the government retaining a “significant” share	80011, 80014, 80017-18
4	Communities benefit from provision of game meat (perhaps as required by law / lease)	80018
5	Communities benefit from the trophy hunting industry by employment opportunities and revenue generated for local microbusinesses (perhaps as required by law / lease)	80018

Lion Management Criteria 7:

- “how a U.S. hunter’s participation in the hunting program contributes to the overall management of lions within a country”

#	Practices	Page(s)
1	Hunting data is collected, recorded, and analyzed by block and concession	80019

2	Monitoring systems are in place and provide consistent reporting	80019
3	"Importing countries should have the ability to ascertain that the imported trophies originated from hunting concessions that fully comply with best practices"	80020

Lion Management Criteria 8:

- "[m]anagement programs ... would be expected to address ... evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation"

#	Practices	Page(s)
1	Quotas are in line with or reduced to the maximum harvest guideline: 1 lion/2,000 km ² in most areas or 1 lion/1,000 km ² in areas with high density; areas smaller than 1,000 km ² are allocated the "equivalent fractional quota limit," i.e., 0.1 lion for an area of 200 km ² (1 lion tag every 10 years)	80016, 80019
2	Quotas are adaptively set and managed and fluctuate annually based on population trends (although "every lion" does not need to be counted, scientific trend data must be considered in quota setting)	80019, 80055
3	Quotas are not fixed (meaning the operator does not need to pay any percentage upfront)	80021
4	Quotas do not include females	80021
5	Quotas are based on scientific information considering all offtakes including PAC, translocation, other hunting, culling, etc.	80016, 80019
6	Quotas are approved by an independent (presumably scientific) body	80019
7	Quota-setting procedures are "clearly outlined, transparent, accountable" and CITES-compliant	80019
8	Quotas are set and management decisions are made on an annual basis, from "standardiz[ed]" information sources; these sources are developed from consistent scientific monitoring and using hunting data which is "collected from each hunting block and concession" and analyzed from the prior year	80018-19
9	Trophies are independently evaluated for compliance	80019
10	Data on trophies (e.g. age, sex, origin) is available nationally and internationally	80020
11	Where they can be identified, pride lions are not harvested	80021
12	Lion hunts are required to be a minimum length of 21 days	80021
13	The national lion management plan limits hunting to male lions above a specific, regionally determined age	80020, 80050
14	Age restrictions are implemented and enforced	80019-21, 80050
15	National environmental legislation includes provisions to address the "main threats affecting lions: habitat loss, human–lion conflict, and loss of prey base"	80030
16	The wildlife management authority is properly funded	80019-20
17	Scientific information that is then used for management decisions and quotas is collected from "standardiz[ed]" sources	80019

18	Efforts are being made to reduce corruption (in part by these record-keeping/transparency measures)	80019, 80021-22
19	Wildlife authorities react effectively when problem lion (e.g., “chronic livestock raiders”) are reported	80036
20	Compensation systems are in place (perhaps funded by safari hunting operators) for livestock and human losses to communities	80036, 80051
21	Hunting revenues pay for anti-poaching and law enforcement	80018

Table 2

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
“whether the program is based on sound scientific information and identifies mechanisms that would arrest the loss of habitat or increase available habitat (i.e., by establishing protected areas and ensuring adequate protection from human encroachment”					
1	Hunting revenue is used to “build and maintain fences, provide security personnel with weapons and vehicles, provide resources for anti-poaching activities, and provide[] resources for habitat acquisition and management” (p. 80018)	Chardonnet et al. 2010, pp. 33–34; Newmark 2008, p. 321	Government; Operators; Communities	Save Valley Conservancy, Zimbabwe	
2	Efforts are made to encourage habitat connectivity and development of buffer zones around protected areas (which in turn encourages dispersal and genetic viability) (p. 80018, 80034, 80036)	Chardonnet et al. 2010, p. 34; Newmark 2008, p. 321; Jones et al. 2012, pp. 469–470	Government; Operators; Communities		
3	Community incentives are strong enough to encourage development of wildlife/game management areas (p. 80017, 80035-36)	Chardonnet et al. 2010, p. 34; Packer et al. 2006, pp. 9–10	Government, Communities		
4	Appropriate efforts are made to reduce human encroachment into protected areas (p. 80034)	Mesochina et al. 2010a and b; Treves et al. 2009, pp. 60, 64	Government		
5	The national lion management plan is based on scientifically sound data; the plan is being implemented to address threats facing lion within that country; and the plan’s implementation is tracked and documented (p. 80053)		Government		

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
“whether the management program actively address the loss of the lion’s prey base by addressing [bushmeat] poaching or unsustainable offtake within the country”					
1	Laws against bushmeat poaching are consistently enforced (p. 80011)		Government		
2	Penalties for bushmeat poaching are deterrent (p. 80011)		Government		
3	Hunting program is science-based and adaptively managed (p. 80019-21)		Government; Operators		
4	Hunting operators assist in reducing human-wildlife conflict and retaliatory killing by helping avoid depredation (p. 80012)		Operators		
“whether there are government incentives in place that encourage habitat protection by private landowners and communities and incentives to local communities to reduce the incursion of livestock into protected areas or to actively manage livestock to reduce conflicts with lions”					
1	Communities are given rights over land to conservation wildlife (p. 80011, 80035)	Lindsey et al. 2012b, pp. 36–41; Lindsey et al. 2013b, p. 88	Government		
2	Communities develop alternate industries to reduce their dependence on bushmeat (p. 80035)		Government; Communities; NGOs		
3	Communities “assist in the management of protected areas,” which gives them “a direct stake in the management of wildlife areas” and opens some economic opportunities (p. 80035)	Hazzah 2013, pp. 1, 8; Lindsey et al. 2012b, p. 53; Bandyopadhyay et al. 2010, p. 5	Government; Communities; NGOs		
“whether hunting concessions / tracts are managed to ensure the long-term survival of the lion, its prey base, and habitat”					
1	Hunting concessions are allocated after considering the “operator’s track record in conservation” (p. 80022)	Lindsey et al. 2013a, pp. 2, 9; Lindsey et al. 2007, p. 2	Government; Operators	Zimbabwe	
2	Hunting concessions are allocated according to a “fully transparent system” that allows international “hunters to		Government; Operators		

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
	choose operators who have demonstrated a commitment to conservation principles” and which “provide[s] incentives for operators to comply with the recommended best practices” (p. 80020)				
“if the trophy hunting provides financial assistance to the wildlife department to carry out elements of the management program”					
1	Hunting revenue accrues to the wildlife authority for management activities (p. 80018, 80051, 80054)		Government		
2	The wildlife authority’s budgeting and spending is transparent (80019-20)		Government		
“if there is a compensation scheme or other incentives to benefit communities that may be impacted by lion predation”					
1	Community compensation and benefits sharing is transparent (p. 80018)	Lindsey et al. 2013a, pp. 2– 3, 9; Packer 2015, pers. comm.	Government; Operators; Communities		
2	Community benefits are incorporated into a country’s hunting regulations, land management policies, and lion conservation action plans and National Poverty Reduction Strategies (p. 80018)	Lindsey et al. 2013a, pp. 2–3; Zambia Wildlife Authority 2009, p. 10; Windhoek 2008, p. 18; IUCN 2006a, pp. 22, 24; IUCN 2006b, pp. 23, 28; Zimbabwe Parks and Wildlife Management Authority 2006, unpaginated	Government		“Many” range nations; Tanzania; Zambia
3	Communities actually receive a significant share of revenues from non-consumptive and consumptive uses of wildlife (p. 80017-18), rather than the government retaining a “significant” share (p. 80011, 80014, 80017-18)	White 2013, p. 21; Martin 2012, p. 57; Kiss [editor] 1990, pp. 1, 5–15;	Government; Operators; Communities	Namibia; Save Valley Conservancy, Zimbabwe	Botswana; Tanzania; Zambia; Zimbabwe

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
		Groom 2013, p. 5; Lindsey et al. 2013b, p. 88; Hazzah et al. 2014, p. 852			
4	Communities benefit from provision of game meat (perhaps as required by law / lease) (p. 80018)	White 2013, p. 21	Government; Operators; Communities		Zambia
5	Communities benefit from the trophy hunting industry by employment opportunities and revenue generated for local microbusinesses (perhaps as required by law / lease) (p. 80018)		Government; Operators; Communities		
“how a U.S. hunter’s participation in the hunting program contributes to the overall management of lions within a country”					
1	Hunting data is collected, recorded, and analyzed by block and concession (p. 80019)	Burnett and Patterson 2005, p. 103	Government; Operators		
2	Monitoring systems are in place and provide consistent reporting (p. 80019)	Burnett and Patterson 2005, p. 103	Government; Operators		
3	“Importing countries should have the ability to ascertain that the imported trophies originated from hunting concessions that fully comply with best practices” (p. 80020)	Lindsey et al. 2007, p. 3; Lindsey et al. 2006, pp. 285, 288			
“[m]anagement programs for P. l. melanochaita would be expected to address, but are not limited to: evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation”					
1	Quotas are in line with or reduced to the maximum harvest guideline: 1 lion/2,000 km ² in most areas or 1 lion/1,000 km ² in areas with high density; areas smaller than 1,000 km ² are allocated the “equivalent fractional quota limit,” i.e., 0.1 lion for an area of 200 km ² (1 lion tag every 10 years) (p. 80016, 80019)	Packer 2011; Bauer 2015, pers. comm.; Henschel 2015, pers. comm.; Packer et al. 2015,	Government	Mozambique (Niassa National Reserve only)	Namibia; Mozambique (outside Niassa); Tanzania; Zambia; Zimbabwe (has reduced quota)

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
		per comm.; Creel & Creel 1997, p. 83; Lindsey et al. 2013a, p. 8			("most range countries")
2	Quotas are adaptively set and managed and fluctuate annually based on population trends (although "every lion" does not need to be counted, scientific trend data must be considered in quota setting) (p. 80019, 80055)	Hunter et al. 2013, p. 5	Government		
3	Quotas are not fixed (meaning the operator does not need to pay any percentage upfront) (p. 80021)	Lindsey et al. 2013a, pp. 2–3, 9; Hunter et al. 2013, p. 6; Packer et al. 2006, pp. 5, 9	Government	Mozambique	Namibia; Tanzania; Zambia; Zimbabwe
4	Quotas do not include females (p. 80021)	Hunter et al. 2013, pp. 2, 5; Lindsey et al. 2013a, pp. 2, 9	Government	Other range nations	Namibia
5	Quotas are based on scientific information considering all offtakes including PAC, translocation, other hunting, culling, etc. (p. 80016, 80019)	WWF 1997, pp. 8–10	Government		
6	Quotas are approved by an independent (presumably scientific) body (p. 80019)	Burnett and Patterson 2005, p. 103	Government; Independent Body		
7	Quota-setting procedures are "clearly outlined, transparent, accountable" and CITES-compliant (p. 80019)	Burnett and Patterson 2005, p. 103	Government		
8	Quotas are set and management decisions are made on an annual basis, from "standardiz[ed]" information sources; these sources are developed from consistent scientific monitoring and using hunting data which is "collected from each hunting block and concession" and analyzed from the prior year (p. 80018-19)	Henschel pers. comm. 2015	Government; Operators (reporting requirements)		

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
9	Trophies are independently evaluated for compliance (p. 80019)	Henschel pers. comm. 2015	Government; Independent Body		
10	Data on trophies (e.g. age, sex, origin) is available nationally and internationally (p. 80020)	Henschel pers. comm. 2015	Government; Operators		
11	Where they can be identified, pride lions are not harvested (p. 80021)	Packer et al. 2006, p. 7; Whitman 2004, pp. 176-77; Davidson et al. 2011, p. 114	Operators		
12	Lion hunts are required to be a minimum length of 21 days (p. 80021)	Lindsey et al. 2013a, pp. 2, 9; Lindsey et al. 2007, p. 2	Government; Operators		
13	The national lion management plan limits hunting to male lions above a specific, regionally determined age (p. 80020, 80050)	Loveridge et al. 2007, p. 549; Whitman et al. 2004, p. 177; Packer et al. 2006, p. 7; Lindsey et al. 2013a, p. 8; Packer & Whitman 2006; Hunter et al. 2013, pp. 4–5	Government; Operators		
14	Age restrictions are implemented and enforced (p. 80019-21, 80050)	Loveridge et al. 2007, p. 549; Whitman et al. 2004, p. 177; Packer et al. 2006, p. 7; Lindsey et al. 2013a, p. 8;	Government; Operators	Mozambique (Niassa National Reserve only); Tanzania (to an extent); Zimbabwe	Mozambique (outside Niassa reserve); Tanzania (not fully implemented)

#	Practices (Page)	Representative Citations	Implementers	Currently Doing	Currently Not
		Packer & Whitman 2006			
15	National environmental legislation includes provisions to address the “main threats affecting lions: habitat loss, human–lion conflict, and loss of prey base” (p. 80030)	ECOLEX Database Search	Government; Operators		
16	The wildlife management authority is properly funded		Government		
17	Scientific information that is then used for management decisions and quotas is collected from “standardiz[ed] sources (p. 80019)	Burnett and Patterson 2005, p. 103	Government; Operators		
18	Efforts are being made to reduce corruption (in part by these record-keeping/transparency measures) (p. 80019, 80021-22)	Lindsey et al. 2013a, pp. 2– 3, 9; Smith et al. 2003, p. 69; Garnett et al. 2011, p. 1; Smith & Walpole 2005, p. 252; Packer 2015, pers. comm.; Transparency International 2014, unpaginated	Government		All range nations
19	Wildlife authorities react effectively when problem lion (e.g., “chronic livestock raiders”) are reported (p. 80036)	Frank et al. 2006, p. 9	Government		
20	Compensation systems are in place (perhaps funded by safari hunting operators) for livestock and human losses to communities (p. 80036, 80051)	Dickman 2013, p. 383; Hazzah 2006, p. 45	Government; Operators; Communities		
21	Hunting revenues pay for anti-poaching and law enforcement (p. 80018)	Chardonnet et al. 2010, pp. 33– 34; Newmark 2008, p. 321	Government; Operators; Communities	Save Valley Conservancy, Zimbabwe	

Table 3

Please note that there do not seem to be many additional or different criteria in the Proposed Rule.

#	Practices	Page(s)
1	"[M]onitoring data used to determine quotas have included, but are not limited to, past hunting off-take records, trophy quality data, ground transect surveys, wildlife ranger and safari operator input, the species' reproductive biology, and aerial population census data, although usually aerial data is limited to species that can be easily observed from the air, such as elephants and buffalo."	64488
2	"In order for scientifically based quotas to result in offtake less than the growth rate of target specimens, many factors are evaluated including the species' biological factors (reproductive rate, gender, age, and behavior), as well as community and client objectives."	64489
3	<p>"[I]t has been reported that more protective standards and guidelines are implemented, such as the best practices listed below:</p> <ul style="list-style-type: none"> • "Minimum trophy quality, sizes, and standards; • "Wildlife hunting regulations enacted and enforced; • "Professional hunting associations formed; • "Professional hunting training courses; • "Professional hunter standards established; • "Quota-setting procedures; • "Compliance with CITES demonstrated; • "Monitoring; and • "Information and data collection and analysis." 	64491
4	<p>"For the import of sport-hunted trophies, while there is evidence that many of the range countries are implementing lion management plans, we want to encourage and support efforts by these countries to develop plans that are based on sound scientific information.</p> <p>... "Such management plans would be expected to address, but are not limited to, evaluating population levels and trends; the biological needs of the species; quotas; management practices; legal protection; local community involvement; and use of hunting fees for conservation."</p>	64501