Wild Pig, Peccary and Hippo TAG 2017 Meeting

WPP&H TAG Meeting Agenda

- Introductions
- Philippine Biodiversity Center Foundation Update
- ZIMS Update
- Program goals
- Review Conservation Programs
- RCP Update

Philippine Update

Roger Sweeney
Virginia Zoo

Program Goals

ZIMS UPDATE: Studbooks

Katelyn Mucha
Species 360

The goals of the Wild Pig Peccary and Hippo Taxon Advisory Group for the next three years are outlined below.

WOODLAND PARK ZOO

These goals are intended to focus attention on efforts directed at the *ex-situ* and *in-situ* management and conservation for wild pigs, peccaries and hippos.

1) Incorporate recently completed PVA data into program master planning and next RCP.

2) Recommend and encourage cooperative partnerships with non-member institutions, to meet population management goals. All transactions concerning these non-members shall be in compliance with the “AZA Acquisition/Disposition Policy” and the “AZA Full Participation in the Species Survival Plan Partnership and Process Policy”. Priority will be given to full AZA members when developing breeding recommendations and transfers for all wild pig, peccary and hippo program species.

3) Partner with ungulate TAGs to develop Animal Care Manuals and breeding protocols for all seven species of pigs and peccaries currently in North America. Develop a hippo specific Animal Care Manual.

4) Coordinate Advisory Group activities with those of the IUCN’s Wild Pigs, Peccary and Hippo Specialist Groups and other regional TAG’s on behalf of pig, peccary and hippo conservation. Invite members to Joint TAG meetings.

5) Strongly encourage all institutions to reduce populations of non-recommended species and replace with managed program species, with consideration given to zoogeographical and collection plan themes.

Warty Pig

The focus for this program is to encourage more intuitions to add this species to their collections. It presents a great opportunity to convey a conservation message about a critically endangered species as well as to help with in ex situ conservation project. Additionally, the TAG will not only continue to encourage all holders of this species to support the Philippines Biodiversity Conservation Foundation Inc. (PBCFI) but it will also build to re-establish the communication conduit to the program.

MANAGEMENT ACTIONS

Given the current challenges for the Visayan warty pig population, PVA results indicate that the following management actions should be considered in an effort to maintain this population's sustainability. Note that the PVA allows us to compare between these hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints.

To remain demographically stable, maintain a consistent breeding rate: If an average of 8-9 births are produced each year, the Visayan warty pig population could remain near its current size over the next 100 years. To avoid a decline, the population should produce an average minimum of ~7 births per year.

To reduce vulnerability, spread breeding and individuals among AZA institutions: Because 60% of recent births have been produced at one institution, and because only two institutions hold potentially breeding pairs, managers should work to distribute breeding efforts and individuals more evenly among institutions to reduce risks associated with catastrophic events (e.g., disease outbreaks, natural disasters). Recent breeding and transfer recommendations have establish more breeding pairs, which should alleviate this issue.

Red River Hog

The managed population is at its target population size but more institutions are coming on board. Breeding recommendations will only be made to maintain the population. Only offspring resulting from recommended pairings will be given priority for placement. Additionally, this species would benefit from gaining a better understanding of its reproductive biology. The reproductive advisor for the TAG is developing projects in this area.

MANAGEMENT ACTIONS

Given the current challenges for the red river hog population, PVA results indicate that the following changes in management should be considered in an effort to improve this population's sustainability. Note that the PVA allows us to compare between these hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints.

To remain demographically stable, continue to balance breeding and exports rates: At the current breeding rate of ~31 births per year, the program could export a maximum of ~8 individuals per year to maintain the population at a stable size. Managers should continue to work cooperatively among zoos to make certain that exportation occurs only at a rate that is necessary to offset births within the population.

To maintain genetic health, adhere to genetic management recommendations: With continued mean-kinship based pairing, the population is projected to develop high inbreeding, above that of offspring produced by mating between half siblings, and to retain ~85% gene diversity over the next century. Conversely, breeding of genetically overrepresented individuals could be expected to result in higher inbreeding and lower gene diversity in 100 years. Therefore, managersshould continue to carefully follow breeding recommendations set by their population advisor to prioritize breeding opportunities for underrepresented individuals.

Babirusa

This program needs more breeding so the SSP has made recommendations to bred 27 females in the hopes that these will lead to 14 births of the next two years. The program leader is also working closely on a global level to improve the demographic and genetic needs of the species.

This partnership could develop into a GMSP.

MANAGEMENT ACTIONS

Given the current challenges for the babirusa population, PVA results indicate that the following changes in management should be considered in an effort to improve this population's sustainability. Note that the PVA allows us to compare between these hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints. In addition, our model does not incorporate the potential negative effects of inbreeding depression, such as reductions in fecundity or litter size, increases in infant mortality, and other detrimental effects. **Therefore, given the current high level of inbreeding in the babirusa population, our results may be optimistic if inbreeding depression occurs.**

To remain demographically stable, slightly increase breeding. To maintain the population's current size of ~55 individuals, the population would need to produce ~6 births per year in the next decade, and 6-7 births per year to grow to fill 82 spaces. As the population has produced an average of 6.4 births per year in the past five years, this increase in breeding should be achievable. If inbreeding depression occurs, a higher number of births may be necessary to offset possible negative demographic effects.

To improve gene diversity and reduce inbreeding, import unrelated individuals. Although the population could sustain itself demographically, gene diversity is expected to rapidly decline and inbreeding levels are expected approach that of mating between identical twins in the next century. Importing and breeding 27 completely unrelated individuals (3 per decade over eight decades) would allow the population to maintain >90% gene diversity for 100 years. However, as very few unrelated babirusas are available internationally, this genetic goal is likely unrealistic.

Chacoan Peccary

This species has direct ties to a conservation project and has a strong education component to it.

The TAG is recommending that all collared peccary holders replace that species with Chacoan peccary. The collared peccary program will be phased out. Additionally the SSP will investigate the possibility of importing captive bred animals from Proyecto Tagua in Paraguay.

MANAGEMENT ACTIONS

Given the current challenges for the Chacoan peccary population, PVA results indicate that the following changes in management should be considered in an effort to maintain this population's sustainability. Note that the PVA allows us to compare between hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints.

To remain demographically stable, maintain a consistent breeding rate: If an average of ~7 births are produced each year, the Chacoan peccary population could remain near its current size.

To retain high gene diversity:

If possible, import unrelated individuals. Importing unrelated individuals (in accordance with federal and international regulations), if possible, could potentially help to retain higher gene diversity and minimize inbreeding in the Chacoan peccary population over the next century. Under current breeding rates, the population would retain ~94% gene diversity in 100 years with regular imports of genetically unique potential founders (compared to ~74% GD without imports).

Secure and fill additional holding space. The population could increase in size and fill 112 total holding spaces with ~11 births/year in the next decade, and ~9 births/year thereafter. At the larger size, gene diversity would remain high if imports and exports continue, and slightly more gene diversity would be retained in 100 years if the population does not receive any genetically unique imports (78% GD).

Common Warthog

This program will need to reassess target population based on 2014 survey results. The population is trending towards fewer institutions. In the meantime, work is needed in understanding high infant mortality in the species. Greater effort will be made in assessing this pattern. The TAG will also encourage institutions to follow breeding and transfers recommendations and/or confer with the program leader prior to making moves.

MANAGEMENT ACTIONS

Given the current challenges for the common warthog population, PVA results indicate that the following changes in management should be considered in an effort to improve this population's sustainability. Note that the PVA allows us to compare between these hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints.

To remain demographically stable, balance breeding and exports rates: At the current breeding rate of ~20 births/year and with 1-2 imports/year, the program could export ~1 individual/year to maintain the population at its current size. Managers should work cooperatively among zoos to make certain that exportation occurs only at a rate that is necessary to balance births and imports into the population.

To remain demographically stable in the absence of continued imports, increase breeding. Without continued imports and export, the population is expected to decline over the next century. However, a slight increase in breeding from ~20 births/year to ~21 births/year would allow the population to maintain its current size. Without exchanges, it would also be easier to manage the population genetically. To fill 136 potentially available spaces, breeding would need to be further increased to produce ~23 births per year over the next century.

To maintain genetic health, adhere to genetic management recommendations: With genetic management based on mean-kinship based pairing, the common warthog population may retain 70% gene diversity and minimize inbreeding levels without imports. Therefore, managers work to carefully follow breeding recommendations set by their population advisor.

River Hippo

The entire population is being managed as one program which includes *h.a. kikboko* and *h.a. amphibious*. The immediate needs of this program are to investigate unknown and unknown pedigree animal in order to facilitate genetic management. Additionally the SSP is looking for more institutions to come on as breeding facilities. The development of more bachelor groups is also being explored in order to create more spaces for breeding pairs

MANAGEMENT ACTIONS

Given the current challenges for the river hippopotamus population, PVA results indicate that the following changes in management should be considered in an effort to improve this population's sustainability. Note that the PVA allows us to compare between hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints.

To remain demographically stable, increase breeding: If breeding can be increased from an average of ~1 birth per year to 3 to 4 births each year, the river hippopotamus population could remain near its current size and maintain nearly 90% gene diversity among known-pedigree individuals over the next century. This breeding rate would be difficult to achieve unless facilities capable of housing breeding groups and bachelor groups are constructed. Program managers recommend that new breeding facilities be capable of holding at least two adult females per adult male and allow for separation of adult males from females and their offspring. If the river hippo population produces fewer than 3 to 4 births per year, it could be expected to decline during the next 100 years.

Pygmy Hippo

All subspecies are being managed as one program. This program is looking to add more holding institutions which could occur over the next three years according to the space survey. Additional animals could also become available from a non-AZA participant if pedigrees can be determined. These could help this population become more sustainable

MANAGEMENT ACTIONS

Given the current challenges for the pygmy hippopotamus population, PVA results indicate that the following changes in management should be considered in an effort to improve this population's sustainability. Note that the PVA allows us to compare between these hypothetical changes, but cannot evaluate whether achieving these changes is feasible, practical, or desirable given the program's constraints.

To remain demographically stable, increase breeding: If breeding is increased from an average of ~2 births per year to 2 to 3 births each year (an average of 2.5 births), the SSP population could remain near 32 individuals and retain ~81% gene diversity over the next 100 years. Any lower breeding rate would cause the population to decline during the next century.

To improve genetic health and grow the population, include non-SSP individuals: If the program imports two genetically valuable individuals from European zoos, the pygmy hippopotamus SSP population is predicted to maintain ~82% gene diversity and slightly lower inbreeding over the next century. If a non-AZA institution currently holding 48 hippos becomes an active participant in the SSP, the population could remain near 80 individuals and maintain close to 90% gene diversity by producing an average of ~5 births per year.

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Conservation Projects

Hippos

Pygmy hippo conservation

The TAG encourages species holders to support EDGE of existence program for Pygmy hippos in Sierra Leon

Project goals:

- Conduct surveys to establish distribution, population size and threats around Loma Mountain
- Work with local communities around Loma Mountain to establish community based conservation initiative benefiting both local people and pygmy hippos
- Carry out a national assessment to determine distribution, population size and priority sites for conservation work
- Develop national action plans for pygmy hippo conservation in each of the range states
- Integrate additional data from other current projects by creating a new pygmy hippo website and database for sharing knowledge
- Continue to build capacity and co-ordinate conservation work with collaborators

River Hippos Conservation

The Ruko Community wildlife conservancy of the Northern Rangelands Trust in `Kenya is an area that hugs the eastern shore of Lake and the only one in Baringo district. Years of ethnic conflict and environmental degradation have resulted in Ruko Community Conservancy being somewhere tourists pass through, rather than stay. Yet with more careful management and unity, Ruko is slowly realizing its potential to rehabilitate the land, bring back the wildlife, sustain traditional values and attract its share of tourists in the area

African Wild Pigs

Red River Hog Conservation

Bushmeat Crisis Task Force:

http://www.bushmeat.org/

Warthog

Northern Rangelands Trust (Kenya)

http://www.nrt-kenya.org/

Asian Wild Pigs

Visayan Warty Pigs

The Philippines Biodiversity Conservation Foundation Inc. (PBCFI) has been working on Visayan Warty Pig conservation and stewardship since 1994.

Babirusa

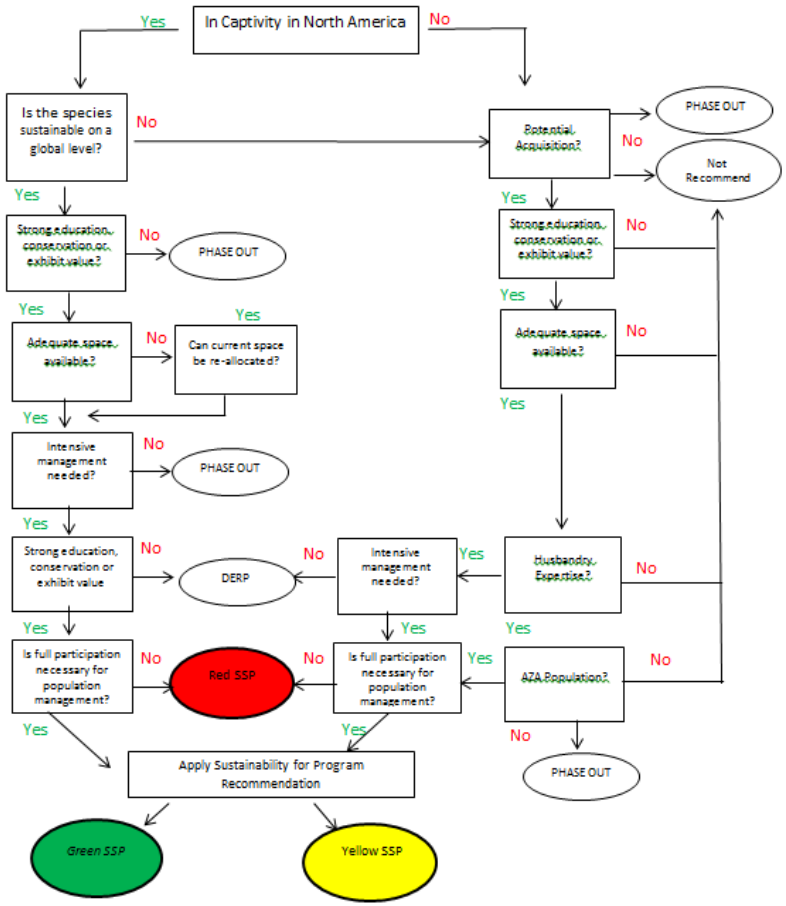
Support the ACTION INDONESIA GSMP!
For more information, contact James Burton,
IUCN Asian Wild Cattle Specialist Group Chair.
jamesaburton@yahoo.co.uk

Regional Collection Plan Update

WOODLAND PARK ZOO

Decision Tree Template

Table 3



Decision Tree Selection Criteria

1. Currently in Captivity in North America Collections?
The Captive Status summary is used for determining this. This is a simple yes or no.

2. Is the Species Sustainable on a Global Level?
The determination as to whether a population is viable within the region with or without non-AZA participation. Is the population capable of growing by supplementing or importing from other regions.

3. Husbandry Expertise?
Is there adequate husbandry expertise in the region to maintain or increase numbers.

4. Potential Acquisition?
Are there any zoos considering the import of a new species or additional founder animals to supplement a current AZA population?

5. Adequate Space Available?
The Space Survey is used to gauge how interested zoos are in this particular species? Is there institutional commitment and support? What the survey tell us about future space for each species is a factor. It also includes spaces available by counting non-AZA partners.

6. Strong Education or Conservation or Exhibit Value?
Is at least one of the following criteria met by the species?

- Is there a strong educational or program animal value to keeping this species in captivity
- Is there scientific or research potential projects that will be carried out?
- Is there potential for the captive population to affect in-situ or ex-situ conservation?
- Is there a significant degree of threat to the species in the wild?
- Is the species taxonomically unique?
- Is there strong exhibit value?
- Is there an international conservation or management program such as an international studbook or Global Species Management Plan (GMSP)?

7. Intensive Management Needed?
Consideration was given to whether the species needs to be managed by an intense program such as an SSP or Studbook.

8. Apply Sustainability Criteria for Program Recommendation

AZA WPP&H TAG Primary Goals

- Promote the importance and value of exhibiting pigs, peccaries and hippos in AZA zoos.
- Establish and coordinate captive management programs for wild pigs, peccaries and hippos currently in AZA institutions.
- Serve as a resource for zoos seeking information on husbandry and management of pigs, peccaries and hippos in captivity.
- Aid in the conservation of pigs, peccaries and hippos in the wild, by encouraging and facilitating the involvement of AZA zoos with *in-situ* conservation projects.
- Promote the highest standards of husbandry and welfare of pigs, peccaries and hippos through the development of Animal Care Manuals (ACM).

Animal Program Goals and Summary

River Hippopotamus — **Assurance Population**
hippopotamus amphibious

The entire population is being managed as one program which includes *h.a. kikboko* and *h.a. amphibious*. The immediate needs of this program are to investigate unknown and unknown pedigree animal in order to facilitate genetic management. Additionally the SSP is looking for more institutions to come on as breeding facilities. The development of more bachelor groups is also being explored in order to create more spaces for breeding pairs

Pygmy Hippo — **Assurance Population**
Choeropsis liberiensis liberiensis

All subspecies are being managed as one program. This program is looking to add more holding institutions which could occur over the next three years according to the space survey. Additional animals could also become available from a non-AZA participant if pedigrees can be determined. These could help this population become more sustainable

Babirusa — **Assurance Population**
babyrousa celebensis
This program needs more breeding so the SSP has made recommendations to bred 27 females in the hopes that these will lead to 14 births of the next two years. The program leader is also working closely on a global level to improve the demographic and genetic needs of the species. This partnership could develop into a GMSP.

Red River Hog — **Education/Exhibit Needs**
potamochoerus porcus
The managed population is at its target population size but more institutions are coming on board. Breeding recommendations will only be made to maintain the population. Only offspring resulting from recommended pairings will be given priority for placement. Additionally, this species would benefit from gaining a better understanding of its reproductive biology. The reproductive advisor for the TAG is developing projects in this area.

Animal Program Goals and Summary

Chacoan Peccary **Conservation Action**
catagonus wagneri
This species has direct ties to a conservation project and has a strong education component to it.
The TAG is recommending that all collared peccary holders replace that species with Chacoan peccary. The collared peccary program will be phased out. Additionally the SSP will investigate the possibility of importing captive bred animals from Proyecto Tagua in Paraguay.

Collared Peccary **Education/Exhibit Needs**
Pecari tajacu

The current population consists of 53 individuals in 16 institutions, many of which are in specific zoogeographic exhibits. .The WPP&H TAG is urging institutions to think outside those limits and replace this species with Chacoan peccaries. No further breeding recommendations are being made for this species.

Common Warthog **Education/Exhibit Needs**
Phacochoerus africanus

This program will need to reassess target population based on 2014 survey results. The population is trending towards fewer institutions. In the meantime, work is needed in understanding high infant mortality in the species. Greater effort will be made in assessing this pattern. The TAG will also encourage institutions to follow breeding and transfers recommendations and/or confer with the program leader prior to making moves.

Visayan Warty Pig **Assurance Population**
Sus cebrifrons

The focus for this program is to encourage more intuitions to add this species to their collections. It presents a great opportunity to convey a conservation message about a critically endangered species as well as to help with in ex situ conservation project. Additionally, the TAG will not only continue to encourage all holders of this species to support the Philippines Biodiversity Conservation Foundation Inc. (PBCFI) but it will also build to re-establish the communication conduit to the program.