

**Observations on the Visayan Warty Pigs  
(*Sus Cebifrons*: Heude, 1888) and Hybrids  
of the Silliman University Wild Pig  
Breeding Facility, Dumaguete,  
Philippines**

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**Abstract** - An empirical study using five characteristics to distinguish the Visayan warty pigs from hybrids was conducted at the Silliman University captive breeding facility. The characteristics used were genotype, physical characteristics, behavior, fecundity, and carcass and meat characteristics. Hybridization of Visayan warty pig is seen as a threat to the genetic integrity of wild populations. Mitigation measures and other recommendations to control hybridization include control of feral pigs and eradication of hybrids.

*Keywords:* Visayan warty pigs, breeding, hybridization

## INTRODUCTION

The Philippines has four species of wild pigs (Heaney et al., 1997; Caldecott et al. 1994; de Haan et al., 1994; Oliver, 1993; Oliver et al. 1993; Oliver et al., 1994; Groves, 1997; Oliver, 2008a,b in iucnredlist.org). They are the Visayan warty pig, *Sus cebifrons*, found in the west-central Visayas region, the Philippine warty pig, *S. philippensis* from Luzon, Mindanao and associated islands, the bearded pig, *S. barbatus*, from Palawan and associated islands, and *S. oliveri* from Mindoro.

In addition to the four known suids, hybrid forms have been reported in some parts of the Philippines (Oliver, 1993). On Negros Island, *Sus cebifrons* has been known to interbreed with domestic pigs (Oliver, 1993; Alcala, 1993). This paper presents our observations on the physical and behavioral characteristics of Negros hybrids and wild pigs (*Sus cebifrons*) under captive conditions.

## MATERIALS AND METHODS

The study employed direct observation in determining differences between hybrids and Visayan warty pigs kept under captive conditions. This was undertaken in a reforested area built with pig paddocks measuring between 150m<sup>2</sup> to 200m<sup>2</sup>. The report is based on collated accounts and notes of the caretaker and project manager, since the start of the Visayan warty pig captive breeding project in 1993 (Alcala, 1993; Alcala, 1995; Alcala and Inocencio, 1997). The total number of pigs observed was 19 individuals. At least 70% of these were Visayan warty pigs composed of 9 adults and 4 juveniles. Five of these adults were wild-caught individuals.

The study also involved examination of freshly necropsied wild pigs and hybrids for anatomical comparison. In addition to this, field accounts, and secondary information were incorporated in the report to provide additional information.

Table 1. Comparison of Visayan warty pig characteristics with hybrids.

Characteristic or feature	Warty pig	Hybrid
Genotype	2N= 34*	2N=37**
General physical characteristics	Long tapering snout with bilateral warty protuberances on the proximal 3 <sup>rd</sup> . Tusk outgrowth develop among males below the warts. Small ears, straight tail, well developed mane (among males). Males generally bigger and well built than females.	Moderately long snout, intermediate- sized ears, straight tail, dark body coat sometimes with mane. Usually don't develop warty outgrowth. Fast growing. Male and female adults approximate domestic pig size.
Behavioral characteristics	Cryptic and shy to human presence Intensive rooting activities	Adapt to human presence Spend more time resting than rooting Generally sociable and readily accept new individuals in the group.
Fecundity	2 litter. May drop litter 2x a year	4 or more litters. Gestation 110-120 days.
Carcass and meat characteristics	Less fat but may accumulate fat when overfed Pink to brownish color when cooked***	Distinct fat which readily stand out Whitish color when cooked

\*<http://lccn.loc.gov/2006014871>

\*\*Samantha, pers.comm.

\*\*\*based on hunter's account

### ***Comparison of genotypes of Philippine Suids***

Chromosomal studies on Philippine suids by Bosma et al, (1994) using GTG-banding show variation (Robertsonian translocation) in the number of diploid

chromosomal number from 36 to 38. The Luzon and Mindanao pigs bearing  $2n=36$  chromosomes had a centric fusion between chromosomes 13 and 16 in the homozygous condition while the F1 captive-bred individuals had  $2n=37$  chromosomes. The latter progenies also had similar central fusion with their parents but in the heterozygous condition. Furthermore, Culion and Mindoro pigs had  $2n=38$  with the chromosomes 13 and 16 exhibiting separation. In addition to this, domestic pigs appear to have  $2n=38$  but when crossed with *S. cebifrons* bearing  $2n=34$  chromosomes, result in  $2n=37$  (<http://lccn.loc.gov/2006014871>; Samantha, pers com). Negros hybrids appear to be intermediates of the domestic pig and warty pig in terms of number of chromosomes.

### ***Physical and Fecundity Characteristics***

Hybrids are intermediates of domestic and warty pigs (Fig.1). They have smaller ears (not drooping) and longer and narrower snouts than domestic pigs. Conversely, they have larger ears and shorter snouts than the Negros warty pigs (Fig. 2). The latter appears to coincide with our initial measurements with a museum hybrid pig skull which show some reduction of the nasal bone length. Furthermore, some hybrids can grow a mane (thick long neck hairs), and may develop small warts on their snout.

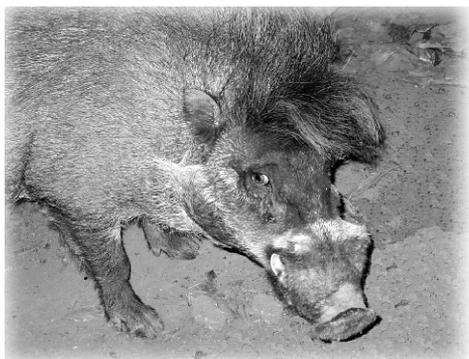
Hybrids are usually borne in litters of four (or more) in contrast to the Negros wild pigs which are usually borne in pairs. The piglets assume the color of their wild counterparts with dark body coats lined with 4 to 5 light brown stripes running from nose to tail (Fig.1). The stripes slowly fade out during the first year and completely disappear on the second year. They quickly

mature within 1-2 years and adapt to a docile life under captive conditions. Although no growth data are available at the moment, hybrids appear to grow faster and mature earlier than warty pigs.



Fig.1  
A group of domesticated piglets and hybrids (with dorsal stripes).

Fig. 2  
An adult warty pig kept at the Silliman breeding facility.



### ***Behavioral Characteristics of Hybrids and Warty Pigs under Captive Conditions***

Wild pigs recently introduced in their paddocks exhibit cryptic behavior and spend a lot of time hiding behind bushes and staying in secluded areas. They also do a lot of rooting activities in the evenings and early mornings and during latent times of the day. On the other hand, captive-bred wild pigs are less excitable and may completely lose its fear from caretakers. These pigs, however, will continue to maintain distance and

avoid human contact. In contrast, hybrids are relatively more “tamed” compared to their wild pig counterparts and may even allow themselves to be handled.

### ***Comparison of Domestic, Hybrid and Wild Pork***

Hybrids, like domestic pigs, accumulate fat, especially when overfed. Leman et al. (1982) attributes this fat as a distinctive layer below the epidermis. The presence of observable fat in hybrid and domestic pork appears to influence the lighter color of the meat. In comparison, freshly butchered wild pork usually appear darker. This color difference can be told apart from poorly bled meat (which tend to make the meat appear darker) by looking for presence of coagulated blood. The color difference among pork meat of different origins have been elucidated by Żmijewski and Korzeniowski (2001) in their physico-chemical analysis of wild European boar meat. The differentiation between hybrids and warty pigs can be further improved through histological examination.

## **DISCUSSION**

### ***Hybridization of Philippine Suids***

Information on the extent of hybridization among Philippine pigs is limited. Cross-breeding of wild pigs has been done experimentally in government institutions like the Ecosystem Research Development Bureau of the Department of Environment and Natural Resources in Los Banos, Laguna (Pasicolan, pers comm). Hybridization is common in mountain areas where free-ranging of pigs is practiced (Alcala and Omero, 2003). Free-ranging sows often come into contact with wild boars and breed with them producing hybrids. Some free-ranging individuals become feral

and join a wild herd. One of the authors (Ely Alcala) was able to observe several ferals joining a wild herd in the hinterlands of southern Negros.

William Oliver, IUCN pigs and peccaries specialist, once described suid hybrids as walking “time bombs” that slowly erode genetic integrity of local populations. In his report, Oliver (1993) estimated the Negros stock of Visayan warty pig (*S. cebifrons*) to be significantly contaminated by hybrids. This became one of the reasons (together with hunting pressure and habitat destruction) why the Visayan warty pig was declared Critically Endangered in 1996 (Oliver, 2008a in [iucnredlist.org](http://iucnredlist.org)).

### ***Feeding Habits and Adaptation***

Visayan warty pigs are known to feed on plants and insects in their natural habitats (Alcala and Brown, 1969). We corroborate these findings with our observations on the extensive rooting habits of wild pigs which leave the paddock grounds devoid of vegetation. This also prevents saplings from generating in the animals' paddocks. In addition to this, post-mortem examinations of newly captured wild pigs and wild pigs kept in the captive breeding facility show plant materials and insect parts inside their stomachs (Alcala and Inocencio, 1997). Plant feeding habits of wild pigs have been elucidated by Hamann and Curio (1999) who further suggested that *S. cebifrons* is an important dispersal agent for plant seeds of the genus *Lithocarpus* and genus *Dillenia*.

## **CONCLUSION AND RECOMMENDATION**

The five ways of differentiating Visayan warty pigs from hybrids have some practical value. The use of

carcass and meat to elucidate the difference between hybrids and warty pigs can be used to monitor the sale of wild pork. On the other hand, advance development on molecular analysis presently allows more detailed studies on the genetic makeup of species and can be applied to determine the degree of hybridization among pigs in the wild and in breeding facilities.

Hybridization of compromises the genetic integrity of the species. The practice of raising domestic pigs outside pens in areas adjacent to wild pig habitats near forested areas inadvertently cause interbreeding and production of hybrids. If left unmitigated hybridization can lead to the decline of the genetic viability of Negros warty pigs. There is a need to regulate and control the practice of allowing pigs to forage close to forest areas. A review of current DA and DENR policies should be made to favor the preservation of endemic species by removing the ferals and hybrids from forests and natural habitats of wild pigs. On the other hand, feral pig population needs to be controlled if not eradicated. Feral pigs have been known to wreak havoc on the natural ecology of forest and farm systems and are great source of annoyance for many farmers (refer also to Mungall, 2001; USDA, 2002.).

The observations on the captive behavior of pure and hybrid pigs can help guide management improve conditions for wild pigs like putting up hides to reinforce the sense of security for sensitive and excitable individuals and providing plant material as part of animal feed.

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