Temminck's ground pangolin *Smutsia temminckii*
MORPHOLOGY

• Share a basic morphology, but many differences:
  – size/weight (2-35 kg)
  – scale disposition
  – scale size
  – scale colour
  – tail length
  – presence of tail pads

• Hair bristles between scales in Asian species.

• All have no teeth.

Source: Pocock (1924)
Black-bellied pangolin *Phataginus tetradactyla*
PANGOLIN EVOLUTION AND TAXONOMY

- Evolved around 80 million years ago
- Closely related to the carnivores and palaeanodonts.

- Potentially European origin, then dispersal to Africa and then Asia (Gaudin et al. 2009).

- Order: Pholidota
- Family: Manidae
- *Smutsia* – African, terrestrial
- *Phataginus* – African, arboreal
- *Manis* - Asian

Hypothetical pangolin ancestor (Kingdon et al. 2013)

Late Eocene palaeanodont *Xenocranium pileorivale*
HABITAT, ECOLOGY AND BEHAVIOUR

- Occur in a wide range of habitats
- Myrmecophagous
- Regulate social insect populations
- Solitary
- Arboreal/fossorial lifestyles
- Primarily nocturnal (except *P. tetradactyla*)
- Defence mechanism, …roll in to a ball!
POPULATION BIOLOGY

- Few quantitative population estimates; lifespan in the wild unknown.
- Breeding is seasonal/aseasonal depending on species.
- One/two young at parturition, after c.6 months gestation.
WHERE ARE PANGOLINS?

• A history of utilisation.
• Consumption/sold for income near universally.
• Many other uses for scales/body parts.
COMMERCIAL TRADE/USE

• Commercial trade in pangolins since at least early 20\textsuperscript{th} century.

• Scales/skins from Southeast to East Asia typically.

• At the same time, annual harvest in China in 1960-80s was c.160,000 animals annually.

• Five species listed in CITES in 1975, trade continues, but little conservation attention!
INTERNATIONAL TRADE/TRAFFICKING

- High volumes of legal and illegal trade from 1975 onwards.
- Depleted populations in China driving global trade dynamics.
- Estimated more than one million pangolins traded since 2000.
- Trafficking from Southeast Asia, South Asia and now Africa, to East Asia.

Source: Challender et al. 2015
TRAFFICKING OF PANGOLINS
WHERE ARE PANGOLINS TODAY?

Main threat = overexploitation (international trafficking and local use).

- Chinese pangolin CR
- Sunda pangolin CR
- Indian pangolin EN
- Philippine pangolin EN
- Ground pangolin VU
- Giant pangolin VU
- Black-bellied pangolin VU
- White-bellied pangolin VU
100+ experts dedicated to furthering pangolin research and conservation
SOME EXAMPLES…
SOME EXAMPLES...

Home range, habitat selection and activity patterns of an arid-zone population of Temminck’s ground pangolins, Smutsia temminckii

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SCALING UP PANGOLIN CONSERVATION

IUCN SSC Pangolin Specialist Group Conservation Action Plan
Compiled by Daniel W. S. Challenor, Carly Weterman and Jonathan E. M. Baillie
Pangolins in peril
This unloved mammal is being eradicated

Media

Telegraph magazine

INDEPENDENT

sky NEWS

Bangkok Post

CNN

MONGABAY

the guardian

CBS

The New York Times
‘Roll with the pangolins’
Raising awareness through gaming
THE FUTURE...
PRIORITIES

1. Demand reduction

• Understand, in-depth, consumer demand for meat and scales to formulate behaviour change interventions:
  ▪ Who are consumers?
  ▪ Motivations for consumption
  ▪ Barriers and benefits
  ▪ How to influence consumers?
  ▪ How to measure the success of interventions?
PRIORITIES

2. Field monitoring and strongholds

• Develop pangolin-specific methodologies

• Field test, evaluate, and scale methodologies.

• Identify and verify strongholds

• Prioritise sites for protection
PRIORITIES

3. Gain local community buy in at strongholds
   • Crucial to any intervention at the local level.
   • E.g. as informants, as stewards as part of community management.

Source: Biggs et al. 2016
THANK YOU FOR LISTENING

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