

→ Southern Hornbill. → 50 yrs lead. ~~1~~ ^{yellow} bills
→ how to cool the hornbill boxes.
→ ultimately mitigate the high temps.

Drongos are winning but how
Drongos → measure their BM later

→ they are ~~st~~ studying how birds are coping.

→ they want to measure BM and temp
but they can't

→ Currently:

→ using modified kitchen ~~scales~~ scales

approx weights: 42 → 62.
50g avg

sig error is too high

→ DOWS eating chicks during twilight activity

→ ~~they~~ 50.6°C is the limit.

→ Nests (Boxes) Hardwood hole & perch plywood side and roof
1.5m above ground

→ Cameras record too late. Unreliable in recording

→ Interior of box needs to be wood

Hornbills

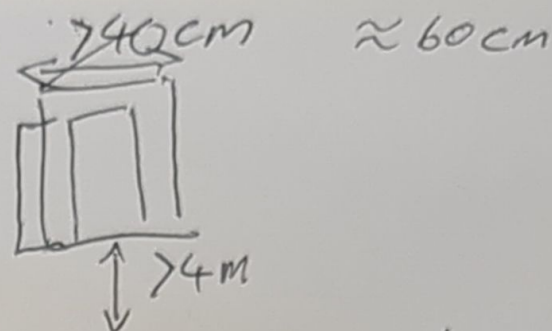
Lift lid, lift female
with pillowcase, measure
chicks, replace all

PROBLEM
(1)

Drongos

Climb up, fetch cam
collect data, replace
battery, put back

Ground Hornbill



→ Artificial nests

→ height $\pm 110\text{cm}$ weight $\pm 3-5\text{kg}$ 2-11 birds co-op breeders

→ Natural nests in tree cavities $>4\text{m}$ high $>40\text{cm}$ wide

↳ Rare

→ Investigate impact of temp/food avail. by weighing on nesting

↳ Only can be measured nesting. Very shy 'skittish'

→ Anything visible/hearable will be destroyed

→ Max battery capacity 2-3 weeks

→ Multiple birds in nest at same time

→ Scale thres $>2\text{kg}$

→ Camera as weight recorded

→ Sometimes land on nest roof

→ Unique facial patterns, identifiable (AI?), unique sounds too

→ Only female/chicks in nest + food + ... unreliable measuring

→ "Nest" perches can have some wobbliness

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PROBLEM

(2)

1hr drive between nests

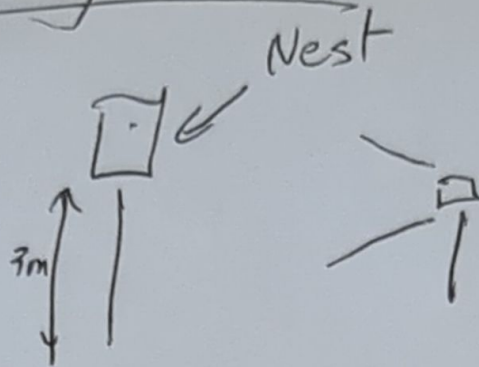
6m high ladder, measure

chicks, swap camera traps

Driving main issue

Red-Winged Starlings Secretary Birds

- Freestanding camera trap
- Stability key
- Not too visible
- No visible wires
- Nest on top of trees



Red-Winged Starlings

- Clever
- Interested in breeding pattern in city
- Need v. small not visible cameras watching nests
- No charge for up to 2 months
- Livestreamed?
- Scale to auto-record weight (Birds ID'd)
150-160g Max
- Upper Campus