BIRDS · BEHAVIOUR & ECOLOGY

Oxpeckers: Friend or Parasite?

Tick-eaters, wound-pickers and rhino bodyguards — the surprisingly complicated relationship between oxpeckers and the animals they ride.

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> Every guest knows the picture: a buffalo or giraffe with little brown birds clambering over it, picking off ticks. It looks like the perfect partnership. The research says the real story is messier — and much more interesting.

01 Meet the oxpeckers

There are only **two species**, and both are found only in the savannas of **sub-Saharan Africa**. They were once treated as a kind of starling, but molecular studies place them in their own lineage, the family **Buphagidae**.

BUPHAGUS ERYTHRORYNCHUS

Red-billed Oxpecker

Olive-brown, with an **all-red bill** and a red eye ringed by a **fleshy yellow wattle**. Call: a distinctive "tsik-tsik".

BUPHAGUS AFRICANUS

Yellow-billed Oxpecker

Olive-brown, with a **yellow bill tipped red**, a red eye with **no wattle**, and a **pale buff rump**.

Young birds of both species lack the bright bill and eye colours. Where the two share a host, the **yellow-billed is usually dominant** — it is heavier with a thicker bill.

LIFE ON A MOVING HOME

- They feed only on large mammals, mostly big ungulates.
- They nest in **tree holes**, which they line with **hair plucked from their hosts**.
- Non-breeding yellow-billed oxpeckers may even **roost overnight** on the animal they fed on.
- **Elephants** don't normally tolerate them — a good question to put to guests.

02 What's on the menu?

Ticks are the main food, but not the only one. Oxpeckers also take other parasites, **earwax**, flakes of skin and — the controversial part — **tissue and blood from wounds**.

KRUGER, 2015 STUDY

38%

of red-billed oxpecker behaviours were tick feeding — ticks were the main food source.

SAME STUDY

6 of 855

observations were wound feeding, all by red-billed oxpeckers. None by yellow-billed.

Often-quoted older figures put a red-billed oxpecker's intake at just over 400 ticks a day, and captive yellow-billed birds at up to 13,000 tick nymphs a day. Treat these as rough, reported figures rather than field measurements.

03 The experiment that changed the story

In a study published in 2000, **Paul Weeks** ran what has been called the first experimental study of the "helpful tickbird" idea — **in Zimbabwe**, on a herd of 22 Bonsmara oxen. The herd was split, oxpeckers were chased away from one group, and the two groups were compared.

WEEKS (2000): WHAT HAPPENED WHEN OXPECKERS WERE REMOVED

Adult tick loads	Wound healing	Time on adult ticks
No change	**Faster**	**< 15%**
birds weren't measurably reducing ticks	without birds — oxpeckers kept wounds open longer	of foraging; the rest on wounds & earwax

Weeks P. (2000) "Red-billed oxpeckers: vampires or tickbirds?" Behavioral Ecology 11: 154–160.

The title of his paper says it all: *"Red-billed oxpeckers: vampires or tickbirds?"*

BUT KEEP IT BALANCED

Weeks worked on **ranch cattle**, not wild game. A 2015 study in Kruger found that wound feeding was rare and ticks were the main food. Researchers now describe oxpeckers as sitting on a **mutualism–parasitism continuum**: whether they help or harm depends on conditions such as how many ticks there are and the host's condition.

04 Who do they ride?

Oxpeckers are choosy. Bigger animals carry more ticks, and studies across the region show clear favourites.

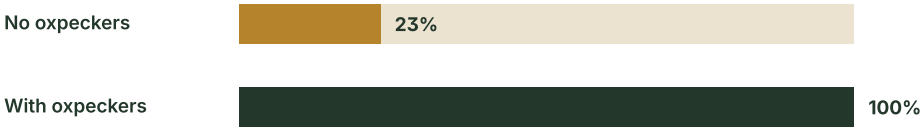
STUDY	SPECIES	FINDING
Matobo NP, Zimbabwe (Mooring & Mundy, 1996)	Yellow-billed	Preferred **larger-bodied** hosts. Use rose about **threefold** in the wet season, when ticks are heavier. Hosts at **water** were more attractive.
Kruger NP (Grobler, 1980)	Red-billed	**Giraffe** was the most important host; 11 of 19 large mammal species were used.

STUDY	SPECIES	FINDING
Kruger NP (Hausler et al., 2026)	Yellow-billed	**Buffalo** the most frequent host, **giraffe** second.
Kruger NP (Ndlovu & Combrink, 2015)	Both	Yellow-billed used a narrower range of hosts; red-billed shifted to smaller hosts where the two overlapped.

05 The rhino's guard

Whatever they do for ticks, oxpeckers clearly do something for black rhinos. In Swahili the red-billed oxpecker is ***askari wa kifaru*** — "the rhino's guard". A 2020 study tested it by walking up to wild black rhinos.

BLACK RHINOS THAT DETECTED AN APPROACHING PERSON



Plotz & Linklater (2020), Current Biology

DETECTION DISTANCE

61 m

Average with oxpeckers aboard — nearly four times farther than rhinos alone. More birds meant earlier warning.

ENCOUNTERS AVOIDED

40–50%

The researchers' estimate of possible encounters thwarted by the birds' alarm calls.

On hearing the alarm, the rhinos nearly always turned to **face downwind** — their blind spot, where they can't smell danger coming.

06 Why oxpeckers disappeared — and came back

In the first half of the 20th century both species suffered big population and range losses. The causes were **poisoning from cattle dips**, **over-hunting** of the large animals they depend on, and the **1896–97 rinderpest epidemic**.

1. **1893** — arsenic-based cattle dips introduced in South Africa; compulsory from 1911.
2. **1907** — yellow-billed oxpecker extirpated from South Africa.
3. **Mid-1970s** — oxpeckers gone from stock-farming areas, largely confined to game reserves.
4. **Late 1970s** — yellow-billed begins recolonising Kruger, probably from **Gonarezhou** via the Sengwe communal lands, using undipped cattle and wild hosts.
5. **1980** — a study finds most dips are toxic to oxpeckers.

6 **1983** — arsenic dips banned in South Africa, replaced by "oxpecker-friendly" pyrethroid dips.

By the late 1980s, red-billed oxpeckers in South Africa and Zimbabwe were still largely confined to conservation areas. Today Kruger holds South Africa's only breeding population of yellow-billed oxpeckers, and researchers have recommended reintroducing them to parts of their former range. Neighbouring farmers are encouraged to use pyrethroid-based dips.

AT THE SIGHTING — HOW TO SAY IT

"Everyone calls these tickbirds, and they do eat ticks — but here's the twist. When a researcher here in Zimbabwe kept them off cattle, the ticks didn't increase, and wounds actually healed faster without them. They like a bit of blood and earwax too. So are they friends or freeloaders? Probably a bit of both. But a black rhino would vote friend: rhinos carrying oxpeckers spotted people approaching every single time in one study — without the birds, less than a quarter of the time."

ASK YOUR GUESTS

"Why do you think you never see oxpeckers on elephants?"

07 Key terms

Mutualism	A relationship in which both species benefit.
Parasitism	A relationship in which one species benefits at the other's expense.
Ectoparasite	A parasite living on the outside of its host, such as a tick.
Acaricide	A chemical that kills ticks and mites — the active ingredient in cattle dips.
Buphagidae	The oxpecker family; two species, both African.

In summary

- Two species: **red-billed** (red bill, yellow eye-ring) and **yellow-billed** (yellow bill with red tip, pale rump).
- Ticks are their main food, but they also take **blood, wound tissue and earwax**.
- A Zimbabwe experiment found removing them didn't raise tick loads but did speed wound healing.
- The relationship sits on a **mutualism–parasitism continuum**.
- Their alarm calls help black rhinos detect people — 100% vs 23% in one study.
- Arsenic cattle dips wiped them out of farmland; safer dips helped them return.

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