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Q1(d)

Smell as a signal among non-human primates.

UPSC Civil Services Mains 2025 · Anthropology GS 1 · 10 marks · Characteristics of Primates

1.5 Characteristics of Primates; Evolutionary Trend and Primate Taxonomy; Primate Adaptations; (Arboreal and Terrestrial) Primate Taxonomy; Primate Behaviour; Tertiary and Quaternary fossil primates; Living Major Primates; Comparative Anatomy of Man and Apes; Skeletal changes due to erect posture and its implications.

Core demand of the question

- State how smell works as a primate signal
- Contrast strepsirrhine and haplorhine reliance on olfaction
- **Give functions:** territory, sex, kin and alarm
- Keep the argument on non-human primates

Revision summary

Smell is chemical communication through glands, urine and body odour.

Strepsirrhines keep a rhinarium and **vomeronasal organ** and mark heavily, as in ring-tailed lemur stink fights.

Callitrichids such as marmosets and tamarins mark range with glands.

Haplorhine monkeys and apes rely more on vision, though some inspection behaviour remains.

Functions include territory, reproductive status, kin recognition and alarm.

Human pheromone claims are a separate and contested literature.

Introduction

Among non-human primates, smell is a social signal, not a leftover sense. Chemical cues on the body and in the environment tell others who is here, who is ready to mate, and whose range this is. The channel is stronger in some lineages than in others.

Body**How the signal works**

Smell travels as urine, faeces, gland secretions and whole-body odour. Many **strepsirrhines** (lemurs, lorises, galagos) keep a moist nose and a working **vomeronasal organ** (Jacobson's organ). They are olfactory specialists. **Haplorhines** (tarsiers, monkeys, apes) reduced that hardware as colour vision and facial signalling expanded. This is a phylogenetic contrast, not a ladder. A lemur is not a failed monkey.

Field primatology by workers such as **Alison Jolly** on ring-tailed lemurs made scent-marking visible to anthropology students who otherwise notice only calls and faces.

Functions of the signal

- **Territory and range:** Ring-tailed lemurs (*Lemur catta*) mark with wrist and upper-arm glands. Males even waft marked tails in ritual "stink fights" over space and status. Marmosets and tamarins (callitrichids) use circumgenital and chest glands to label a home range, as **A. F. Dixon** and field studies of New World monkeys have described.
- **Sex and rank:** Odour can advertise oestrus, individual identity and dominance. In many strepsirrhines, chemical cues help decide who may approach whom. In catarrhine monkeys and apes the same work is done more by vision and behaviour, though residual sniffing and genital inspection still occur, for example in some macaques.
- **Kin and infant:** Mothers and infants recognise one another partly by smell. Nocturnal mouse lemurs and lorises lean on nest and body odour more than diurnal monkeys do.
- **Alarm and spacing:** A volatile cue can draw a group together or, conversely, warn that a predator or a rival troop has passed.

Comparative yield

Primate communication is **multimodal**. Smell is the quiet channel that human observers under-record because our own noses are weak. Strepsirrhine marking, New World glandular marking, and the haplorhine shift toward vision together define the contrast. Contested human pheromone claims belong to a different question.

Flow diagram

Scent signal -> Territory
Scent signal -> Sex and rank
Scent signal -> Kin and infant
Strepsirrhines -> Scent signal
Haplorhines -> Vision-heavy

Conclusion

- **Smell among non-human primates is a full signal system with senders, receivers and contexts:** territory, mating and kinship. It is richest where the **vomeronasal organ** and scent glands still work. Treat it as comparative primate behaviour, not as a story about human attraction.

Facts & figures

Vomeronasal organ

An accessory olfactory structure used in many strepsirrhines to detect chemical cues. It is reduced in catarrhine monkeys and apes.

Ring-tailed lemur scent marking

Antebrachial and brachial glands. Males use marked tails in ritual stink fights over space and status.

Callitrichid marking

Marmosets and tamarins deposit glandular scent to label home range and social identity.

Strepsirrhine-haplorhine split

Wet-nosed primates retain stronger olfactory specialisation. Dry-nosed monkeys and apes emphasise vision and facial signalling.

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