BEETLES

of Patna Urban Area

पटना शहरी क्षेत्र के

भृंग

Bihar State Biodiversity Board
बिहार राज्य जैव विविधता बोर्ड
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General Introduction

- The order Coleoptera (Beetles), represents the most taxonomically diverse insect group globally, comprising approximately 40% of all described insect species across numerous specialized families.
- They occupy virtually every terrestrial and freshwater ecosystem, ranging from primary forests and grasslands to modified urban environments.
- Their incredible diversity in morphologies, and functional ecological roles makes them one of the most important components of global biodiversity.

Why Beetles Are Important

Beetles function as ecosystem engineers contributing to habitat resilience and biodiversity. Through burrowing and pedoturbation, they enhance soil aeration and structure, while their role in decomposition facilitates nutrient cycling and soil enrichment. They provide essential ecosystem services to agriculture, including detritivory and the biological control of pest populations.

Do you know?

- **Scydosella musawasensis (Featherwing Beetle): World's Smallest Beetle: measuring just 0.325 mm (325 micrometres)-smaller than a single grain of sand. Found in tropical fungi across Nicaragua and Colombia.**
- **Titan Beetle (Titanus giganteus): The largest beetle without horns, featuring body lengths up to 16.7 cm (6.6 in) in South American rainforests.**

Do you know?

- Goliath Beetle (Goliathus): One of the heaviest insects alive, this African giant grows up to 11 cm (4.3 in) long.
- Atlas Scarab Beetle (Chalcosoma atlas): Famous for its dramatic armoured horns, reaching lengths of up to 12 cm (4.7 in).
- Hercules Beetle (Dynastes hercules): Claims the record for total length-males with massive horn spans reach up to 16.7 cm (6.6 in).

Ecological Roles of Beetles

Beetles play vital roles in sustaining ecosystem structure and overall environmental health:

Decomposition and Nutrient Cycling: Accelerate the breakdown of organic matter (dead plants and animals), returning essential nutrients to the soil.
i.e., Dung beetles, Carrion beetles

Pollination: Serve as essential pollinators, particularly for ancient and primitive flowering plants.
i.e., Scarabs, Sap beetles, Weevils

Biological Pest Control: Act as natural predators that regulate agricultural pest populations and control harmful insects.
i.e., Ladybird beetles, Ground beetles

Soil Structure and Aeration: Improve soil aeration, water infiltration, and fertility through burrowing activity.
i.e., Ground beetles, Darkling beetles

Food Web Support: Form a vital link in terrestrial and aquatic food chains, serving as a primary prey source for birds, mammals, reptiles, and amphibians.

Morphology of Beetles

Antennae: Sensory Hubs

Beetle antennae function as primary sensory organs. They enable chemoreception (detecting odours, pheromones, and chemical signals), tactile navigation (feeling physical surroundings), and the detection of air motion or humidity shifts.



Key Features of Beetles

- Body divided into three parts: Head, Thorax and Abdomen.
- Three pairs of legs attached to the thorax.
- One pair of antennae on the head.
- Two pairs of wings: Forewings (elytra) and hind wings.
- Mouthparts of chewing type.

Life Cycle of Beetles

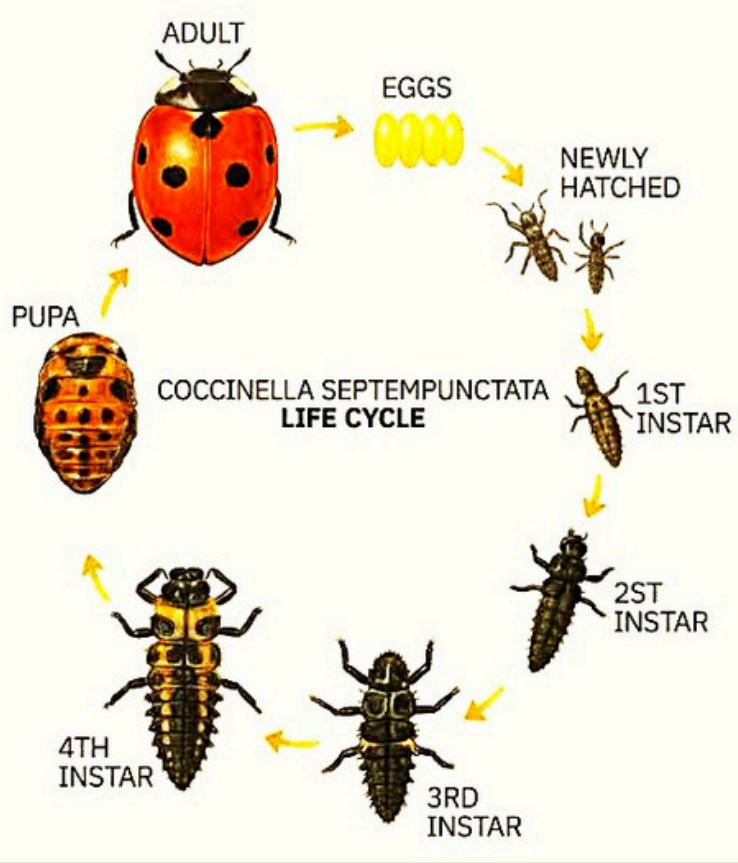


Fig: Seven-spotted Lady Beetle *(Coccinella septempunctata)*

The life cycle of a beetle consists of four main stages:

1. **Egg:** Yellow, oval, laid in clusters on leaves
2. **Larva:** Active, elongated larvae undergo 4 instars, voracious predators
3. **Pupa:** Non-feeding, attached to plant, internal metamorphosis occurs
4. **Adult:** Holometabolous predator with red elytra and 7 black spots

This type of insect life cycle is known as Complete metamorphosis (egg → larva → pupa → adult).

Beetle Families Recorded (Taxonomical Classification)

Kingdom: Animalia
Phylum: Arthropoda
Class: Insecta
Order: Coleoptera
Family:

- *Carabidae*
  - *Scarites terricola*
  - *Ophonia indica*
  - *Calosoma maderae*
  - *Pheropsophus subrinus*
  - *Chlaenius pictus*
  - *Harpalus rubripes*
  - *Chlaenius sericeus*
- *Cicindelidae*
  - *Cicindela bicolor*
  - *Cylindera minuta*
  - *Cicindela flavomaculata*
- *Staphylinidae*
  - *Paederus fuscipes*
- *Scarabaeidae*
  - *Adoretus nigrifrons*
  - *Anomala antiqua*
  - *Apogonia cribricollis*
  - *Onthophagus taurus*
  - *Gymnopleurus miliaris*
  - *Cantharsius pithecius*
  - *Adoretus versutus*
  - *Adoretus hirsutus*
- *Buprestidae*
  - *Chrysobothris octocola*
- *Tenebrionidae*
  - *Gonocephalum spp.*
  - *Derosphaerus sinensis*
  - *Alphitobius diaperinus*
- *Meloidae*
  - *Hycleus phaleratus*
  - *Hycleus biundulatus*
- *Anthicidae*
  - *Anthelephila caeruleipennis*
- *Melyridae*
  - *Intybia korshunovi*
- *Cerambycidae*
  - *Stromatium barbatum*
  - *Coptops aedificator*
  - *Olenecamptus bilobus*
- *Chrysomelidae*
  - *Diapromorpha pallens*
  - *Cassida circumdata*
  - *Metrionella bilimeki*
  - *Galerucella placida*
  - *Altica birmanensis*
  - *Aulacophora indica*
  - *Aulacophora lewisii*
  - *Monolepta signata*
  - *Calligrapha bicolorata*
  - *Platycorynus azureus*
  - *Clytra laeviuscula*
  - *Cryptocephalus analis*
  - *Cryptocephalus dregii*
- *Brentidae*
  - *Holotrichapion pisi*
- *Curculionidae*
  - *Rhynchophorus ferrugineus*
  - *Lepropus lateralis*
  - *Myllocerus paetus*
  - *Mecopus hupei*
  - *Bruchidius villosus*
  - *Pandeleteius hilaris*
  - *Hypolixus truncatulus*
- *Coccinellidae*
  - *Cheilomenes sexmaculata*
  - *Coccinella septempunctata*
  - *Chilocorus nigritus*
  - *Brumoides suturalis*
  - *Henosepilachna vigintioctopunctata*
  - *Coccinella transversalis*
  - *Micraspis yasumatsui*
  - *Pharoscymnus horni*
  - *Anegleis cardoni*
  - *Henosepilachna pusillanima*
  - *Propylea dissecta*
  - *Henosepilachna argus*
  - *Propylea japonica*

Family Carabidae (Ground Beetle)

Characterized by dark, shiny, elongated bodies and long, slender legs adapted for swift movement. Active generalist predators that play a key role in pest management.

- **Lifespan:** 6 months to 1 year
- **Diet/Primary Prey:** Predators feed on insects, larvae, and pests in park areas
- **Size:** 2-25 mm
- **Active season:** Spring to autumn, mostly nocturnal
- **Breeding season:** Spring-summer
- **Optimal Conditions:** Moist soil, leaf litter, and areas with abundant prey availability
- **Importance:** Serves as a key biological control agent by managing agricultural and garden pests



Big-headed Ground Beetle
Scarites terricola



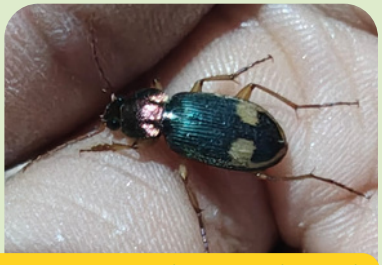
Long-naked Ground Beetle
Ophonia indica



Asian Bombardier Beetle
Pheropsophus sobrinus



Caterpillar-hunter Beetle
Calosoma maderae



Two-spotted Ground Beetle
Chlaenius pictus



Harp Ground Beetle
Harpalus rubripes



Vivid Metallic Ground Beetle
Chlaenius sericeus

Family Cicindelidae (Tiger Beetle)

Agile, diurnal predators known for their vibrant coloration, large prominent eyes and powerful mandibles. Equipped with long, slender legs they are exceptionally fast runners that actively hunt prey during the day.

- **Lifespan:** 1-3 months, larvae in soil
- **Diet/Primary Prey:** Predatory, small insects, larvae
- **Size:** 10-25 mm, slender, long legs
- **Active season:** Summer-Rainy
- **Breeding season:** Spring-monsoon, eggs in soil
- **Optimal conditions:** Warm, moderate humidity
- **Importance:** Natural predators, control pests



Bicoloured Tiger Beetle
Cicindela bicolor



Tiger Beetle
Cylindera minuta



Tomcat Beetle
Paederus fuscipes



Ground chafer
Anomala atiqua



Yellow-spotted Tiger Beetle
Cicindela flavomaculata

Family Staphylinidae (Rove Beetle)

A hyper-diverse group characterized by slender, elongated bodies and characteristically short elytra that expose most of the abdomen. Highly active in soil, leaf litter and decaying organic matteras predators or scavengers.

- **Lifespan:** 1-3 months, larvae in soil/debris
- **Diet/Primary Prey:** Predators & scavengers, insects, organic matter
- **Size:** 2-25 mm, elongated, short elytra
- **Active season:** Year-round, peak warm, moist
- **Breeding season:** Spring-early summer, eggs in soil
- **Optimal conditions:** Warm and humid
- **Importance:** Decomposers and predators, recycle nutrients, control pests

Family Scarabaeidae (Scarab Beetle)

Characterized by stout, heavy-set bodies often displaying metallic or glossy coloration. They are easily recognized by their distinct lamellate (fan-like) antennae. Their diverse family includes dung beetles, chafers, and june beetles.

- **Lifespan:** 3-8 weeks
- **Diet:** Leaf feeders
- **Size:** 5-30 mm, small, bright
- **Active Season:** Spring-autumn
- **Breeding Season:** Spring-summer
- **Optimal Conditions:** Early summer
- **Importance:** Herbivores, some pests, food for others



Chafer Beetle
Apogonia cribricollis



Bull-headed Dung Beetle
Onthophagus taurus



Rose Beetle
Adoretus nigrifrons



Ball-rolling Dung Beetle
Gymnopleurus miliaris



Horned Dung Beetle
Cantharsius pithecius

- **Lifespan:** 1-2 yrs (larvae in wood)
- **Diet:** Mango, neem, eucalyptus, teak, fruit trees
- **Size:** 5-80 mm, hard, elongated, metallic
- **Active season:** Spring-summer
- **Breeding season:** Spring-early summer
- **Optimal conditions:** Warm, dry-moderate humidity
- **Importance:** Ecosystem nutrient cycling



Dusty Surface Beetle
Gonocephalum spp.



Indian Rose Beetle
Adoretus versutus



Jewel Beetle
Chrysobothris octocola



Bark Darkling Beetle
Derosphaerus sinensis



Leaf-chafer Beetle
Adoretus hirsutus

Family Tenebrionidae (Darkling Beetle)

Typically robust, oval to oblong beetles with a somewhat flattened profile and hard, durable exoskeletons. Characterized by dull blacks or dark brown colorations and a distinct frontal ridge on the head above the antennal bases.



Lesser Mealworm
Alphitobius diaperinus

Family Buprestidae (Jewel Beetle)

Characterized by bullet-shaped, elongated bodies that taper toward the rear. Renowned for their brilliant, iridescent metallic colors and large, oval compound eyes.

- **Lifespan:** A few months- 1 year, in soil/litter
- **Diet:** Decaying plants, leaves, debris
- **Size:** 5-25 mm, dark, hard
- **Active season:** Summer-autumn
- **Breeding season:** Late spring-summer
- **Optimal conditions:** Warm, dry
- **Importance:** Decomposers, recycle nutrients, improve soil

Family Meloidae (Blister Beetle)

Typically soft-bodied, elongated, and brightly colored beetles (frequently exhibiting aposematic warning pattern). Known for producing Cantharidin, a defensive chemical toxin, and undergoing a complex development process known as Hypermetamorphosis.

- **Lifespan:** 1-3 months, complex larvae
- **Diet:** Crops, flowers, pulses, weeds
- **Size:** 5-30 mm, soft, bright
- **Active season:** Summer-monsoon
- **Breeding season:** Spring-rainy, eggs in soil
- **Habitat:** Fields, grasslands
- **Optimal conditions:** Warm, humid
- **Importance:** Pollinator, pest control, cantharidin



Chinese Blister Beetle
Hycleus phaleratus



Blister Beetle
Hycleus biundulatus

Family Anthicidae (Ant-like Flower Beetle)

Small, agile beetles that superficially resemble ants due to a distinctively constricted pronotum forming a narrow neck. Found frequently in soil, surface leaf litter, low foliage and flowers, functioning as omnivorous scavengers and opportunistic predators.

- **Lifespan:** 1-2 months, larvae in soil
- **Diet/Primary Prey:** Scavengers, insects, pollen, debris
- **Size:** 2-8 mm, small, slender
- **Active season:** Year-round
- **Breeding season:** Spring-summer, eggs in soil
- **Optimal conditions:** Warm, organic matter
- **Importance:** Decomposers, nutrient recycling, minor predators



Ant-like Flower Beetle
Anthelephila caeruleipennis

Family Melyridae (Soft-winged Flower Beetle)

Small, soft-bodied, elongated beetles, often featuring vibrant, metallic or contrasting colour. Frequently observed on flowers, adults exhibit dual roles as active pollinators and generalist predators of micro-insects.

- **Lifespan:** 1-3 months, larvae in soil/debris
- **Diet:** Pollen, nectar, small insects, plants
- **Size:** 5-15 mm, small, soft
- **Active season:** Spring–summer, on flowers
- **Breeding season:** Spring-early summer, eggs in soil
- **Optimal conditions:** Warm, flower-rich seasons
- **Importance:** Pollinators, minor predators, help ecosystem balance



Malachite Beetle
Intybia korshunovi

Family Cerambycidae (Longhorn Beetle)

Recognized by their elongated bodies and exceptionally long antennae, frequently equal to or exceeding the length of their body. Adults are commonly observed on tree trunks, flowers, or near lights, while larvae function as primary wood-borers inside, dead , decaying or living wood.

- **Lifespan:** 1-3 years, larvae in wood
- **Diet:** Mango, neem, teak, bamboo
- **Size:** 5-100 mm, long antennae
- **Active season:** Spring-monsoon, on trees/lights
- **Breeding season:** Spring-early summer, eggs in bark
- **Best conditions:** Warm, humid
- **Importance:** Wood decomposers, nutrient cycling



Teak Trunk Borer
Stromatium barbatum



Albizia Long-horned Beetle
Coptops aedificator



Case-bearing Leaf Beetle
Diapromorpha pallens



Flea Beetle
Altica birmanensis



Cocoa Branch Borer
Olenecamptus bilobus



Green Tortoise Beetle
Cassida circumdata



Pumpkin Beetle
Aulacophora indica



Tortoise Beetle
Metrionella bilimeki



Black Pumpkin Beetle
Aulacophora lewisii

Family Chrysomelidae (Leaf Beetle)

Typically small, dome-shaped, and brightly colored or metallic. Exclusively phytophagous, both adults and larvae feed directly on plant tissue, often exhibiting high plant-host specificity.

- **Lifespan:** 3-8 weeks, metamorphosis on plants
- **Diet:** Leaves of trees, shrubs, grasses
- **Size:** 1-15 mm; small, bright
- **Active season:** Spring–autumn
- **Breeding season:** Spring–summer
- **Optimal conditions:** Early–mid summer
- **Importance:** Leaf feeders, some pests, also part of food chain



Weed Leaf Beetle
Galerucella placida



White-spotted Leaf Beetle
Monolepta signata



Parthenium Beetle
Calligrapha bicolorata



Pot Beetle
Cryptocephalus dregii

Family Curculionidae (True Weevil)

The largest family in the animal kingdom, characterized by a prominent downward-curved snout (rostrum) and distictly elbowed (geniculate) antennae. Strictly phytophagous, adults and larvae feed on wide spectrum of plants, fruits and stored plant products.

- **Lifespan:** 1-12 months
- **Diet:** Crops, fruits, stored grains
- **Size:** 2-15 mm, small, snout beetles
- **Active season:** Year-round, peak warm
- **Breeding season:** Spring-rainy
- **Optimal conditions:** Warm, humid
- **Importance:** Major crop pests, damage grains and plants



Metallic-leaf Beetle
Platycorynus azureus

Family Brentidae (Straight-snouted Weevil)

Characterized by highly elongated, cylindrical bodies, dull brown, or black coloration and a distinct, straight snout (rostrum). Primarily tropical wood-borers, both adults and larvae live in association with dead wood, timber and decaying plant tissues.

- **Lifespan:** 6 months-2 years, larvae in wood
- **Diet:** Wood, timber, decaying plants
- **Size:** 5-50 mm, long snout
- **Active season:** Spring-summer
- **Breeding season:** Spring-early summer, eggs in wood
- **Optimal conditions**: Warm, humid
- **Importance:** Wood decomposers, recycle nutrients, some pests



Red Palm Weevil
Rhynchophorus ferrugineus



Four-spotted Leaf Beetle
Clytra laeviuscula



Case-bearing Leaf Beetle
Cryptocephalus analis



Pea Pear-shaped Weevil
Holotrichapion pisi



Broad-nose Weevil
Lepropus lateralis



Ash Weevil
Myllocerus paetus



Amaranthus Stem Weevil
Hypolixus truncatulus



Seven-spotted Lady Beetle
Coccinella septempunctata



Long-legged Weevil
Mecopus hupei

Family Coccinellidae (Ladybird Beetle)

Characterized by hemispherical or domed bodies, usually bright red, orange or yellow with distinctive black spots. Both adults and larvae are voracious predators playing a vital role in natural biocontrol of soft-bodied agricultural pests.

- **Lifespan:** 3-6 weeks
- **Diet:** Aphid-infested plants
- **Size**: 1-10 mm, small, dome-shaped
- **Active season:** Spring-autumn
- **Breeding season:** Spring-summer
- **Optimal Condition:** Warm, sunny weather with abundant prey availability
- **Importance:** Beneficial predators, control aphids, protect crops



Malaysian Ladybird
Chilocorus nigritus



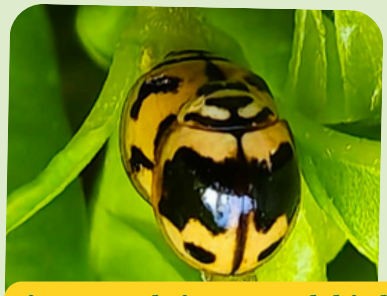
Broom Seed Beetle
Bruchidius villosus



Three-striped Lady Beetle
Brumoides suturalis



Eastern Diamond-necked Weevil
Pandeleteius hilaris



Six-spotted zig-zag Ladybird Beetle
Cheilomenes sexmaculata



Hada Beetle
Henosepilachna vigintioctopunctata



Small Transverse Ladybird Beetle
Coccinella transversalis



12 Spotted Ladybird Beetle
Henosepilachna pusillanima



Lady Beetle
Micraspis yasumatsui



Spotted Ladybird Beetle
Propylea dissecta



Horni's Ladybird Beetle
Pharoscymnus horni



Bryony Ladybird
Henosepilachna argus



Cardon's Ladybird Beetle
Anegleis cardoni



Turtle Vein Lady Beetle
Propylea japonica

Beetles are indispensable components of ecosystem resilience and ecological balance. Serving as crucial pollinators, organic decomposers, natural pest control and primary consumers, their conservation is fundamental to preserving biodiversity of a region.

This brochure documents 64 Beetle species across 14 families belonging to the order Coleoptera, recorded during field survey conducted from February to July, 2026 during Internship Programme of Bihar State Biodiversity Board covering varied habitats in Patna. This documentation is far from exhaustive, as more beetles may be found with further exploratory surveys round the year.

These beetles also play vital roles in sustaining ecosystem health across Patna's varied habitats-from urban parks and agricultural fields to river ghats and riparian zones. To safeguard beetle diversity and their essential ecological services, besides habitat conservation, sustainable land use and management practices with sensitivity towards beetles and other insects and floral restoration are necessary. This brochure intends to foster public awareness in this context.

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Beetles of Patna Urban Area