Family Geotrupidae

References
This key is broadly based on that of Joy (1932) with additional information translated from Machatschke (1969).
Joy (1932) A Practical Handbook of British Beetles.
Lompe A. (2010) Die Käfer Europas, Geotrupidae, following the work of Machatschke. Published online at http://coleonet.de/coleo/texte/geotrupidae.htm

Subfamily BOLBOCERATINAE
Genus ODONTEUS Samouelle, 1819
armiger (Scopoli, 1772)

Subfamily GEOTRUPINAE
Genus TYPHAEUS Leach, 1815 (= Ceratophyus)
typhoeus (Linnaeus, 1758)
Genus ANOPLOTRUPES Jekel, 1866
stercorosus (Scriba, 1791)
Genus GEOTRUPES Latreille, 1796
mutator (Marsham, 1802)
spiniger (Marsham, 1802) 444
stercorarius (Linnaeus, 1758)
Genus TRYPOCOPRIS Motschulsky, 1860
pyrenaeus (Charpentier, 1825)
vernalis (Linnaeus, 1758)

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Family Geotrupidae

Key to genus adapted from Joy (1932) by Mike Hackston.

Abdomen, viewed from below with six visible segments. Antennae with eleven segments (apparently nine-segmented in the non-British *Lethrus* in which the tenth and eleventh segments are sunk into the ninth). Club of the antennae dull, almost always covered with tiny hairs. Front tibiae with six teeth on the outer edge. Hind tibiae with two terminal spurs. Mouth-parts extend beyond the clypeus. A ridge separates each eye partly or completely into two parts. Associated with the dung of herbivores, either in or under it. They dig vertical tunnels or tunnel systems into the soil under the droppings in which the eggs are laid. They then plug the tunnel with dung on which the larvae feed.

1 Elytra finely bordered along the suture. Front femora without a large dense patch of yellow hairs on the front face. Head of male with a long horn that curves back over the pronotum; pronotum of males also with short horns. Length 7-10 mm. ..........................

........ Odontaeus armiger

Elytra not bordered along the suture. Front femora with a large dense patch of pale hairs on the front surface. Head of males without a horn; pronotum with or without horns. ..........................................................2
2 Pronotum broadest at about half way. Male with the front of the pronotum each side extending into a long tooth; female with these represented by short teeth. Hind tibiae with three transverse furrows on the outer surface. 

............ *Typhaeus typhoeus*

Length 11-18 mm; local but widespread; associated with rabbit droppings, often in holes in sandy ground.

Pronotum broadest at the base and without teeth. Hind tibiae with 1-2 furrows on the outer surface. 

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3 Mid line of the pronotum towards the base either with a longitudinal impressed line or with several irregular rows of punctures in a shallow depression. Elytra with very distinct striae. ...........................................5

Pronotum without an impressed line or rows of punctures at the base. Elytra without striae, or striae very indistinct. Length 11-15 mm. Genus Trypocopris. 4
4 Very shining species. Top of pronotum with fine, scattered punctures. Segments of the abdomen viewed from underneath with very fine and scattered punctures in the middle. .................................................................

........ Trypocopris pyrenaeus
Local in southern England, usually on sandy heathland in spring and early summer.

Comparatively dull species. Top of pronotum with denser punctures of varying size. Segments of the abdomen viewed from underneath with strong and dense punctures and hairs all over. ..........................

........ Trypocopris vernalis
Local species mainly found in the north and west, being rarer in the south and east. Summer and autumn.
5 Elytra each with 9 impressed lines between the suture and the humeral prominence with weak punctures lying along them. Length 17-26 mm. 

Geotrupes mutator

On unimproved pasture and moor, coastal grassland and coastal heathland. Associated with cattle, horse and sheep dung, excavating a burrow beneath dung, which it stocks with dung for larval development. Adults are active mainly from April to October. Since 1990 recorded from only thirteen locations, all but one (Northumberland) in southern England. Body rather elongate and convex in section with the underside covered with dark hair (rarely reddish yellow). Varies in colour from green to blue, violet to reddish-gold metallic. Central part of the pronotum smooth with very fine scattered punctures; towards the sides the punctures become more frequent and deeper.

Elytra each with 7 longitudinal impressed lines ridges. Common species. .......6
6 Pronotum and elytra comparatively broader compared to their length. Pronotum with a broad depression on the mid-line near the base with several rows of punctures. Elytra with the furrows comparatively shallower with the spaces between them having a transverse net-like sculpturing throughout. On the hind tibiae a raised transverse line joins the apical two pairs of teeth. Length 13-17 mm. ............................................................... Anoplotrupes stercorosus
Widespread and common throughout the UK. Upper surface usually blackish-blue with the sides blue or greenish, or the pronotum is dark bluish-violet. Elytra greenish-blue or vivid bluish red. Underside metallic blue or green with black hairs. Central part of the pronotum with quite strong punctures which are randomly scattered, those towards the sides much denser. Associated with woodland, laying eggs in the spring. The breeding chambers are oblique to curved, about 7-8 cm deep and are often stocked with other material contaminated with dung, such as pine needles, pieces of wood, paper and bark.

Pronotum and elytra less distinctly broad compared to their length. Pronotum with a distinct furrow along the mid-line reaching forwards from the rear to about half-way. Elytra with the furrows deeper and with the areas between the furrows having a transverse net-like sculpturing at most only towards the apex. Hind tibia with raised transverse lines joining the apical three pairs of teeth. Length 16-25 mm. .................7
Less shining species, generally without a metallic lustre; upper surface black, blackish-blue, dark green or with a bronzy sheen with tinges of gold, red or copper. Pronotum more densely punctured at the side. Underside of the abdomen with a longitudinal line in the middle which has no punctures or hair (except sometimes for the last segment). Males have the hind coxae with a pointed spur and the hind femora have a strong tooth in the middle of the posterior surface which is longer than the spur on the coxae. In females the front tibiae have two teeth.

........ Geotrupes spiniger
Widespread in the UK, common in the south but records become scattered in Scotland. Over 350 records on the NBN atlas (July 2019)

More shining species with a distinct metallic lustre – upper surface black, blackish-green or blackish-blue; underside bluish-violet, blue, blue-green or bluish-black. Pronotum less densely punctured at the sides; underside of abdomen with punctures and hair all over. Males have a spur on the hind coxae.

........ Geotrupes stercorarius
Widespread and common over most of the UK. Eggs are laid in the spring in tunnels about 40 cm deep; they do not lay an autumn brood. Larval development is 12-13 months so they overwinter at this stage with the adults appearing from the end of June.