Migratory locust

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The **migratory locust** (*Locusta migratoria*) is the most widespread locust species, and the only species in the genus *Locusta*. It occurs throughout Africa, Asia, Australia and New Zealand. It used to be common in Europe but has now become rare there. Because of the vast geographic area it occupies, which comprises many different ecological zones, numerous subspecies have been described. However, not all experts agree on the validity of some of these subspecies.

Many other species of Orthoptera with gregarious and possibly migratory behaviour are referred to as 'locusts' in the vernacular, including the widely distributed desert locust.

Migratory locust

Female migratory locust

Scientific classification

Kingdom:	Animalia
Phylum:	Arthropoda
Class:	Insecta
Order:	Orthoptera
Suborder:	Caelifera
Family:	Acrididae
Subfamily:	Oedipodinae
Genus:	**Locusta**
Species:	***L. migratoria***

Binomial name

Locusta migratoria

(Linnaeus, 1758)

Synonyms

- *Acridium migratorium*
- *Acridium plorans*
- *Pachytylus australis* Saussure, 1884
- *Pachytylus migratorius* (Linnaeus, 1758
- *Pachytylus migratorioides* (Fairmaire & L.J. Reiche, 1849)

Contents

Polyphenism

The migratory locust is polyphenic. It transitions between two main phenotypes in response to population density; the solitary phase and the gregarious phase. As the density of the population increases the locust transforms progressively from the solitary phase towards the gregarious phase with intermediate phases:

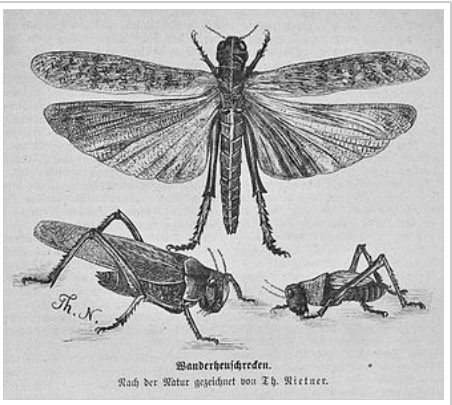
> Solitaire = solitary phase → transiens congregans (intermediate form) → gregarious phase → transiens dissocians (intermediate form) → solitaire = solitary phase.

Pigmentation and size of the migratory locust vary according to its phase (gregarious or solitary form) and its age. Gregarious larvae have a yellow to orange covering with black spots; solitary larvae are green or brown. The gregarious adult is brownish with yellow, the latter colour becoming more intense and extensive on maturation. The solitary adult is brown with varying extent

of green colour depending on the colour of the vegetation. Gregarious adults vary in size between 40 and 60 mm according to the sex; they are smaller than the solitary adults.

Relationship with humans

Economic impact



Adult female (top), adult male (bottom left), third instar nymph (bottom right)

Locusts are highly mobile, and usually fly with the wind at a speed of about 15 to 20 kilometres per hour (9.3 to 12.4 mph). Swarms can travel 5 to 130 km or more in a day. Locust swarms can vary from less than one square kilometre to several hundred square kilometres with 40 to 80 million individuals per square kilometre. An adult locust can consume its own weight (several grams) in fresh food per day. For every million locusts, one ton of food is eaten.

In Africa, the last serious widespread plague of *L. m. migratorioides* occurred from 1928 to 1942. Since then, environmental transformations have made the development of swarms from the African migratory locust unlikely. Nevertheless potential outbreaks are constantly monitored as plagues can be devastating. The Malagasy migratory locust (*L. m. capito*) still regularly swarms (roughly twice every ten years). The desert locust, which is very similar to the African migratory locust, remains a major threat too.

Locust survey and control are primarily the responsibility of the Ministry of Agriculture in locust-affected countries and are operations undertaken by national locust units. The Food and Agriculture Organization (FAO) of the United Nations provides information on the general locust situation to all interested countries and gives warnings and forecasts to those countries in danger of invasion.

Edibility

The migratory locust is edible.[1][2]

Subspecies of *Locusta migratoria*

L. migratoria is found over a vast geographic area, and its range covers many different ecological zones. Because of this, numerous subspecies have been described; however, not all experts agree on the validity of some of these subspecies.[3]


L. m. migratorioides female

- *L. m. burmana* Ramme, 1951
- *L. m. capito* Saussure, 1884 (Madagascar)
- *L. m. cinerascens* Fabricius, 1781 (Italy, Spain)
- *L. m. manilensis* (Meyen, 1835) 1 (eastern Asia)
- *L. m. migratoria* (Linnaeus, 1758) (West and Central Asia, eastern Europe)
- *L. m. migratorioides* (Fairmaire & L.J. Reiche, 1849) (Africa and Atlantic islands)
- *L. m. tibetensis* Chen, Yonglin, 1963
- *L. m. danica* (Linnaeus, 1767) = *L. m. migratoria* (Linnaeus, 1758)
- *L. m. gallica* Remaudičre, 1947 = *L. m. migratoria* (Linnaeus, 1758)
- *L. m. solitaria* Carthy, 1955 = *L. m. migratoria* (Linnaeus, 1758)

Other species called 'locusts'

Other species of Orthoptera that display gregarious and migratory behaviour are called 'locusts'.

- American locust *Schistocerca americana*
- Australian plague locust *Chortoicetes terminifera*
- Bombay locust *Nomadacris succincta*
- Brown locust *Locustana pardalina*
- Desert locust *Schistocerca gregaria*
- Egyptian locust *Anacridium aegyptium*
- Italian locust *Calliptamus italicus*
- Moroccan locust *Dociostaurus maroccanus*
- Red locust *Nomadacris septemfasciata*
- Rocky Mountain locust *Melanoplus spretus* – extinct
- Sahelian tree locust *Anacridium melanorhodon*
- Spur-throated locust, *Australis procera*
- Sudan plague locust *Aiolopus simulatrix*

L. m. migratorioides male

The Senegalese grasshopper (*Oedaleus senegalensis*) also often displays locust-like behaviour in the Sahel region.

See also

- 2004 locust outbreak
- 2013 Madagascar locust infestation
- Australian Plague Locust Commission (APLC)

Footnotes

1. Oonincx, Dennis G. A. B.; van Itterbeeck, Joost; Heetkamp, Marcel J. W.; van den Brand, Henry; van Loon, Joop J. A.; van Huis, Arnold; Hansen, Immo A. (29 December 2010). "An Exploration on Greenhouse Gas and Ammonia Production by Insect Species Suitable for Animal or Human Consumption" (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3012052). *PLoS ONE* **5** (12): e14445. doi:10.1371/journal.pone.0014445 (https://dx.doi.org/10.1371%2Fjournal.pone.0014445). PMC 3012052 (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3012052). PMID 21206900 (https://www.ncbi.nlm.nih.gov/pubmed/21206900).
2. Barsics, F., 2010. L'alimentation des Populations locales de Madagascar productrices de Vers à Soie. - Univ. de Liège.: 1-84. (http://orbi.ulg.ac.be/bitstream/2268/153905/1/chap15.pdf)
3. Chapuis, M-P.; Lecoq, M.; Michalakis, Y.; Loiseau, A.; Sword, G. A.; Piry, S.; Estoup, A. (1 August 2008). "Do outbreaks affect genetic population structure? A worldwide survey in a pest plagued by microsatellite null alleles". *Molecular Ecology* **17** (16): 3640–3653. doi:10.1111/j.1365-294X.2008.03869.x (https://dx.doi.org/10.1111%2Fj.1365-294X.2008.03869.x).

References

- Walker, Annette; Heath, Eric (2000). *The Reed Handbook of Common New Zealand Insects*. Auckland: Reed. ISBN 0-7900-0718-5.
- Steedman, Alison, ed. (1988). *Locust Handbook* (2nd ed.). London: Overseas Development Natural Resources Institute. ISBN 0-85954-232-7.

External links

- Food and Agriculture Organization (FAO) (http://www.fao.org/NEWS/GLOBAL/LOCUSTS/LOCFAQ.htm)
- The phenomenon of phases (http://www.univ-pau.fr/~degreg/site_grasshopper/site_anglais/phases.htm#PP)
- Biolib (http://www.biolib.cz/cz/formsearch/?action=execute&searcharea=1&string=locusta+migratoria)
- Fauna Europaea (http://www.faunaeur.org/full_results.php?id=234721)
- Genus *Locusta* at Orthoptera Species File on Line (http://orthoptera.speciesfile.org/Common/basic/Taxa.aspx?TaxonNameID=51512)

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