

*Pachyanthidium* bees are insects just like honey bees but they do not make honey. They are native bees and likely to be important as wild plant pollinators and possibly as pollinators of crops as well. They live independently of others (i.e. are solitary). This factsheet provides some information that the public can use to familiarize themselves with these bees. The public should also be aware that honey bees are some of bees and there are other kind of bees, like these described here, that do not make honey but are important for other aspects of human wellbeing. Please enjoy reading and enlighten other people of these different bees.

## Scientific Classification

**Kingdom:** Animal  
**Phylum:** Arthropoda  
**Class:** Insecta  
**Order:** Hymenoptera  
**Family:** Megachilidae  
**Subfamily:** Megachilinae  
**Tribe:** Anthidiini  
**Genus:** *Pachyanthidium* Friese, 1905



NB: *Pachyanthidium* bees were previously named under the Genus

## Species in the Genus

The genus *Pachyanthidium* is a group of solitary bees in the tribe Anthidini with about 20 species reported in all continents of the worldwide.

## Representative Species in East Africa

Five described Afrotropical species have been recorded in Kenya, Tanzania and Uganda (Eardley and Urban 2010). It is likely that more species will be found as a comprehensive list of *Pachyanthidium* species occurring in East Africa has yet to be produced.

## Description

*Pachyanthidium* bees are not well known by local people (including farmers) and scientists in East Africa. These bees are often not recognised as bees by local people in East Africa where bees are thought as only honey bees. *Pachyanthidium* bees have long tongues and can feed on deep or shallow flowers. Most *Pachyanthidium* bees in East Africa are pollen-collecting bees. In East Africa, they visit domesticated plant flowers but mainly they visit wild flowering plants. Their importance as effective pollinators in agriculture has yet to be established. However, they may be effective pollinators of wild plant species; hence the need to protect them. Just like other Megachilids, *Pachyanthidium* bees have been not domesticated in East Africa. However, this may be possible with supportive research.

## Similar Taxa/Possible Causes of Confusion

Some insect species can be mistaken for *Pachyanthidium* bees. These include bees in the tribe Anthidiini. Many people confuse *Pachyanthidium* bees with *Afranthidium* bees. They can be easily distinguished by observing their foraging behaviours, size and colour of the body. *Pachyanthidium* are generally medium to large in size compared to *Anthidium* bees which are small. Some ladybird beetles can also be confused with *Pachyanthidium*. Beetles have hardened fore-wings (elytra) while bees have four membranous wings.

## Documented Distribution in Kenya, Tanzania, Uganda

*Pachyanthidium* bees are found in most Districts/Regions of Kenya, Tanzania and Uganda. However, published information on their distribution in these areas is lacking.

## Habitats

*Pachyanthidium* bees can be found in various habitats (land-uses) in East Africa such as grasslands, natural forests, marshlands, protected areas, farmlands, rangelands, woodlands, woodlots (forest

plantations), along river edges (riparian areas) and in coastal areas. In Uganda, these bees are found very common in semi-arid zones.

## Nesting Sites

*Pachyanthidium* bees build their nests in sheltered locations in pre-existing natural cavities such as burrows, crevices and hollow twigs that can be found in less disturbed and dry habitats.

## Crops Visited

*Pachyanthidium* bees visit a variety of flowering crop species belonging to different plant families in East Africa. In Uganda they are seen visiting a few crops such eggplant, cowpeas and sim-sim (sesame). These crops are also available in other EA member countries.

## Other Plants Visited

*Pachyanthidium* bees occurring in East Africa visit a range of wild plant species (trees, shrubs, herbs, weeds, lianas) found in different habitats. These bees preferably visit plant species with small purple and blue, milk cream flowers.

## Threats

In East Africa, *Pachyanthidium* bees and most other bee taxa are threatened by factors such as habitat degradation, agricultural intensification, the overuse and misuse of pesticides. Pests and diseases of these bees may affect their numbers but current effects are unknown. Natural enemies of *Pachyanthidium* bees (e.g. some parasitic wasps and bees) can threaten *Pachyanthidium* bee populations when their numbers. The lack of knowledge of about these bees and their economic importance by people (*de facto* custodians of nature) is probably the most serious threat to bee existence since conservation will depend to a certain extent upon the value that farmers may attach to them.

## Conservation and Management Practices

In the past little information on the usefulness of these bees to the lives of the people in East Africa has been gathered and there have been no scientific or farmer efforts to conserve them. However, information is now being sought and best practices for conservation and management of these bees in will be developed and utilised for improving crop productivity. Theoretically, bee conservation and management is inexpensive and adopted activities can also improve the aesthetic value of the landscape. Such practices involve setting land aside (e.g. a 1-metre strip) in the farmland to host all year round food resources for the bees, as well as safer sites for nesting, mating, resting and hiding from natural enemies. During flowering, farmers should manage pesticide usage carefully to avoid poisoning flower-visiting bees. Farmers should also minimise pesticide drift from the field to adjacent areas. KARI (the Kenya Agricultural Research Institute) is developing protocols for mass rearing of different species of solitary bees. Any successful results from this research will be freely communicated to the public. In addition, KARI is collaborating with other stakeholders to ensure in situ conservation and management of bees for pollination purposes. Much of the work of conserving native bees will be underpinned by raising public awareness of the importance of these species.

## Legislation (National and International)

There is not yet any legislation in East Africa that explicitly addresses pollinators. However, there is scattered legislation for the protection of biodiversity particularly that covering environmental protection, protection of wildlife and heritage sites, protection of forests and natural resources such as water catchments. In addition, laws governing registration and use of plant protection products also indirectly play a major role in the protection of pollinators. Such legislation, together with developments such as the Good Agricultural Practices (GAPs) codes, standards and regulations may help to protect bees albeit incidentally. Farmers should lobby their governments to develop Integrated Pest Management policies that would protect bees and other useful insects of importance in agriculture.

## Sources of Further Information and Links

1. Eardley CD, Gikungu MW and Schwarz MP (2009) Bee conservation in Sub-Saharan Africa and Madagascar: diversity, status and threats. *Apidologie*, 40: 355–366.
2. Eardley CD, Kuhlmann M and Pauly A. (2010) The Bee Genera and Subgenera of sub-Saharan Africa. *Abc Taxa* vol 7: i-vi, 138 pp. <http://www.abctaxa.be/volumes/vol-7-bees>
3. Eardley CD and Urban R (2010). Catalogue of Afrotropical bees (Hymenoptera: Apoidea: Apiformes). *Zootaxa*, 2455: 1–548.
4. Michener CD (2007) *The Bees of the world*, the John Hopkins University Press, Baltimore and London, pp 913.

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## Contacts

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