

CDF Checklist of Galapagos Ants, bees, wasps and related groups

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Abstract

This Checklist of Galapagos Ants, bees, wasps and related groups includes a total of all 84 taxa reported from the Galapagos Islands. For each name, detailed information is provided: its Galapagos distribution in islands groups or bioregions generated from the specimen records, comments about the taxonomy (especially synonyms), the origin (native and introduced), taxon status (accepted vs. rejected records) and relevant literature references.

Introduction

This publication lists all species of Galapagos Ants, bees, wasps and related groups currently known.

The **Hymenoptera** are among largest orders of insects, comprising diverse groups like sawflies, wasps, bees, termites, and ants.

The name refers to their transparent wings, from the Greek *hymen* meaning “membrane” and *pteron* meaning “wing”.

Methods

This checklist of all known Galapagos Ants, bees, wasps and related groups is automatically generated using the online database of the Charles Darwin Foundation Galapagos Species Checklist.

All CDF Galapagos Species Checklists represent the synthesis of many different records: literature citations, data from previously unpublished reports (grey literature), specimen records of natural history collections located in Galapagos and all over the world. To the best of their knowledge authors of the individual checklists revised all available data. When new information becomes available, the taxonomy of a group changes or new species are discovered, the CDF online database and thus this publication becomes updated.

For many poorly known species groups the higher taxonomic classification still regularly changes according to how our knowledge about species being related changes. In many well known groups the phylogeny is somewhat stable, but to avoid confusion, in particular for groups where taxonomic changes are frequent, all checklists presented here are sorted alphabetical according to genus name and specific epithet. Please refer to the website for the currently accepted taxonomic hierarchy of each group.

Please be aware that the distribution presented here is automatically generated from specimen records and does not always accurately reflect the known distribution for all species.

For marine species, the distribution generally refers to the five main bioregions of the archipelago (Far Northern, Northern, Western, South Eastern and the Elisabeth Bay Bioregion). For the terrestrial species more than 120 islands, islets and small rocks have been aggregated into Islands Groups, thus, for example, the island group "Santa Cruz" includes smaller islands like Santa Fé, Plaza Norte, Plaza Sur, Baltra, Daphne Mayor, Daphne Minor, and others.

IUCN red-list assessments presented here may deviate from the global IUCN list for the following reasons:

- for well known species groups like vascular plants or vertebrates updates proposed to the IUCN are shown instead of the outdated, but currently accepted status;
- for poorly known species groups (e.g., lichenized fungi) a general assessment is currently not possible and the list presented here is a regional red-list list for Galapagos archipelago.

Numbers of the species included in this list are auto-generated. Adding up the number of species in each category will not always equal the total number indicated. Some species have insufficient data to be categorized while others (e.g., category eradicated) will not be included in the total.

Results

Names of taxa included in this checklist: 84 (71 accepted, 1 unidentified taxon, 2 doubtful, 4 preliminary identification, 4 problematic, 2 new to science).

Origin of the taxa included: 57 accidental, 1 questionable accidental, 3 questionable native, 6 endemic, 2 questionable endemic.

1. *Adelomyrmex myops* (Wheeler, 1910)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2008), Herrera, H.W. et al. (2008).
2. *Anagyris trinidadensis* (Kerrich, 1953)
Taxon status: Accepted name; taxon occurs in Galapagos.
 Syn.: Apoanagyris trinidadensis (Kerrick, 1953)
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2008), Peck, S.B. et al. (1998).
3. *Anthidium vigintiduopunctatum* Friese
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Gonzalez, V.H. et al. (2009).
4. *Aphytis acutaspidis* Rosen & DeBach, 1979
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
5. *Aprostocetus* sp.
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: No Data.
6. *Bephratelloides cubensis* (Ashmead)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: No Data.
7. *Brachygastra lecheguana* (Latreille, 1824)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008), Hogue, C. et al. (1993), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), Roque-Albelo, L. et al. (1999).

8. *Brachymeria cabira* (Walker, 1838)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: No Data.

9. *Brachymeria funscolombi* (Dufoni)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: No Data.

10. *Brachymyrmex heeri* Forel, 1874

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008), Herrera, H.W. et al. (2008).

11. *Camponotus conspicuus zonatus* Emery, 1894

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

12. *Camponotus macilentus* F. Smith, 1877

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Native, Endemic.

References: Jaramillo, P. et al. (2005), McMullen, C.K. et al. (2010), McMullen, C.K. et al. (2011), Stitz, H. et al. (1932), von Aesch, L. et al. (2005).

13. *Camponotus planus* F. Smith, 1877

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Native, Endemic.

References: Jaramillo, P. et al. (2010), Stitz, H. et al. (1932), von Aesch, L. et al. (2005).

14. *Cardiocondyla emeryi* Forel, 1881

Taxon status: Accepted name; taxon occurs in Galapagos.

Cardiocondyla emeryi Forel, 1881: 5 (w.) VIRGIN IS. Andr  , 1881b: 69 (m.); Forel, 1904f: 422 (q.); Emery, 1909a: 26 (m. ergatoid m., not q.); Arnold, 1916: 201 (q.). Senior synonym of nereis: Wilson & Taylor, 1967: 53; of monilicornis: Baroni Urbani, 1973: 200; of mahdii, mauritia, rasalamae: Bolton, 1982: 312. See also: Smith, M.R. 1944a: 33; Kugler, J. 1984: 3; Seifert, 2003a: 276. Current subspecies: nominal plus fezzanensis.

Origin: Introduced, Accidental.

References: Lubin, Y.D. et al. (1984), von Aesch, L. et al. (2005).

15. *Cardiocondyla minutior* Forel, 1899

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

16. *Cardiocondyla nuda* (Mayr, 1866)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: von Aesch, L. et al. (2005).
17. *Centrodora mireyae* (DeSantis, 1981)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
18. *Centrodora perkinsi* (Waterston, 1917)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
19. *Cheiloneurus elegans* (Dalmon, 1820)
Taxon status: Accepted name; taxon occurs in Galapagos.
Syn.: *Cheiloneurus elegans elegantissimus* DeSantis, 1964
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
20. *Coccophagus rusti* Compere, 1928
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
21. *Conura femorata* (Fabricius, 1775)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
22. *Crematogaster "JTL-022"*
Taxon status: Identification not yet confirmed.
Origin: Introduced, Accidental.
23. *Crematogaster curvispinosa* Mayr, 1862
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Native, Accidental.
24. *Cylindromyrmex whymperi* (Cameron, 1891)
Taxon status: Accepted name; taxon occurs in Galapagos.
Syn.: *Holcaponera whymperi* Cameron, 1891: 92, fig. (w.) ECUADOR. Combination in *Cylindromyrmex*: Forel, 1892f: 256. Junior synonym of *striatus*: Emery, 1901a: 54. Revived from synonymy and senior synonym of *schmidti*, *tibialis*, *williamsi*: De Andrade, 1998a: 596.
Origin: Introduced, Questionable Accidental.

25. *Cyphomyrmex nesiotus* Snelling & Longino, 1992
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Native, Endemic.
26. *Cyphomyrmex rimosus* (Spinola, 1851)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2008), Herrera, H.W. et al. (2008).
27. *Cyphomyrmex sp. nov. "hh04"*
Taxon status: Unpublished name (Nomen nudum).
Origin: No Data.
28. *Diplazon laetatorius* Fabricius, 1781
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998), Peck, S.B. et al. (1996).
29. *Dorymyrmex pyramicus albemarlensis* Wheeler, 1919
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Native, No Data.
References: Wheeler, W.M. et al. (1924), Wheeler, W.M. et al. (1933).
30. *Encarsia citrina* (Craw, 1891)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
31. *Encarsia diaspidicola* (Silvestri, 1909)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
32. *Encarsia pergandiella* Howard, 1907
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2008), Peck, S.B. et al. (1998).
33. *Evania appendigaster* (Linnaeus, 1758)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998), Peck, S.B. et al. (1996).

34. *Exoristobia* sp.
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: No Data.
35. *Hypoconera beebii* (Wheeler, 1924)
Taxon status: Taxonomic status unresolved or unrevised.
Origin: No Data.
References: Linsley, E.G. et al. (1966), Peck, S.B. et al. (1994), Peck, S.B. et al. (1994).
36. *Hypoconera opaciceps* (Mayr, 1887)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1994), Peck, S.B. et al. (1994).
37. *Hypoconera punctatissima* (Roger, 1859)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2008).
38. *Hypoconera* sp.
Taxon status: Taxon not identified to species, subspecies, form or variety.
Origin: No Data.
References: Lubin, Y.D. et al. (1984), von Aesch, L. et al. (2005).
39. *Leptogenys "jel-san"*
Taxon status: Identification not yet confirmed.
Origin: Native, Questionable Endemic.
40. *Leptogenys* sp. nov. "*hh03*"
Taxon status: Unpublished name (Nomen nudum).
Origin: No Data.
41. *Macroteleia absona* Muesebeck, 1977
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
42. *Megachile timberlakei* Cockerell
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Rasmussen, C. et al. (2012).
43. *Monomorium destructor* (Jerdon, 1851)
Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008), von Aesch, L. et al. (2005).

44. *Monomorium floricola* (Jerdon, 1851)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008), Linsley, E.G. et al. (1966), Lubin, Y.D. et al. (1984), McMullen, C.K. et al. (2011), Palacios, R.A. et al. (1975), Peck, S.B. et al. (1994), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), von Aesch, L. et al. (2005), Wheeler, W.M. et al. (1924).

45. *Monomorium pharaonis* Linnaeus, 1758

Taxon status: Taxonomic status unresolved or unrevised.

Origin: No Data.

References: Linsley, E.G. et al. (1966), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996).

46. *Nasonia vitripennis* (Ashmead, 1904)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: No Data.

47. *Nylanderia fulva nesiotis* Wheeler, 1919

Taxon status: Taxonomic status unresolved or unrevised.

Prenolepis fulva Mayr, 1862: 698 (w.q.) BRAZIL. Forel, 1891b: 94 (m.); Forel, 1912i: 67 (m.). Combination in Pr. (*Nylanderia*): Forel, 1908b: 67; in *Paratrechina* (*Nylanderia*): Emery, 1925b: 222; in *Nylanderia*: Kempf, 1972a: 166; in *Paratrechina*: Snelling, R.R. & Hunt, 1976: 122; in *Nylanderia*: LaPolla, Brady & Shattuck, 2010a: 127. Senior synonym of *fumata*: Wild, 2007b: 45. See also: Fernández, 2000: 146; Fox, et al. 2010: 795. Current subspecies: nominal plus *biolleyi*, *cubana*, *fumatipennis*, *incisa*, *longiscapa*, *nesiotis*.

Origin: No Data.

References: Wheeler, W.M. et al. (1933).

48. *Nylanderia steinheili* (Forel, 1893)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Herrera, H.W. et al. (2014).

49. *Odontomachus bauri* Emery, 1892

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Questionable Native.

References: Linsley, E.G. et al. (1966), von Aesch, L. et al. (2005).

50. *Odontomachus ruginodis* Smith, 1937

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

51. *Odynerus galapagensis* Williams, 1926

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Native, Endemic.

References: Abedrabbo, S. et al. (1991), Arnaud, P. H. Jr. et al. (1970), Linsley, E.G. et al. (1966), Williams, F.X. et al. (1926).

52. *Orasema costaricensis* Wheeler & Wheeler, 1937

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Peck, S.B. et al. (1998).

53. *Paratrechina longicornis* (Latreille, 1802)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Jaramillo, P. et al. (2005), Linsley, E.G. et al. (1966), McMullen, C.K. et al. (2010), von Aesch, L. et al. (2005), Wheeler, W.M. et al. (1933).

54. *Paratrechina steinheili* (Forel, 1893)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

55. *Paratrechina vaga* (Forel, 1901)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, No Data.

56. *Pheidole "hh01"*

Taxon status: Identification not yet confirmed.

Origin: No Data.

References: Herrera, H.W. et al. (2014).

57. *Pheidole aff. megacephala* (Fabricius, 1793)

Taxon status: Identification not yet confirmed.

Origin: Introduced, Accidental.

References: Mueller-Dombois, D. et al. (1987).

58. *Pheidole cf. williamsi* Wheeler, 1919

Taxon status: The identification of this taxon or its occurrence in Galapagos is doubtful.

Origin: No Data.

59. *Pheidole flavens* Roger, 1863

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

60. *Pheidole williamsi* Wheeler, 1919

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Native, Endemic.

References: Linsley, E.G. et al. (1966), Lubin, Y.D. et al. (1984).

61. *Polistes versicolor* (Oliver, 1791)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Abedrabbo, S. et al. (1991), Causton, C.E. et al. (2008), Footitt, R.G. et al. (2009), Langlor, D.W. et al. (2009), McMullen, C.K. et al. (2011), Peck, S.B. et al. (1994), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), Peck, S.B. et al. (1994), Roque-Albelo, L. et al. (1999).

62. *Pteroptrix albifemur* (Girault, 1915)

Taxon status: Accepted name; taxon occurs in Galapagos.

Syn.: *Archenomus imitatrix* (Fullaway)

Origin: Introduced, Accidental.

References: Peck, S.B. et al. (1998).

63. *Pyramica membranifera* (Emery, 1869)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008), Herrera, H.W. et al. (2008).

64. *Rogeria curvipubens* Emery, 1894

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008), Herrera, H.W. et al. (2008).

65. *Sceliphron caementarium* (Drury, 1773)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2008).

66. *Solenopsis geminata* (Fabricius, 1804)

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Accidental.

References: Causton, C.E. et al. (2006), Causton, C.E. et al. (2012), Causton, C.E. et al. (2008), Causton, C.E. et al. (2012), Causton, C.E. et al. (2008), Heraty, J.M. et al. (1994), Herrera, H.W. et al. (2008), Herrera, H.W. et al. (2010), Hoffmann, B. D. et al. (2004), Hoffmann, B.D. et al. (2004), Holway, D.A. et al. (2002), Lubin, Y.D. et al. (1984), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), Pezzatti, P. et al. (1998), Plentovich, S. et al. (2011), Plentovich, S. et al. (2010), Roque-Albelo, L. et al. (1999), Tschinkel, W.R. et al. (2006), von Aesch, L. et al. (2005), Wheeler, W.M. et al. (1919).

67. *Solenopsis globularia pacifica* Wheeler, 1919

Taxon status: Accepted name; taxon occurs in Galapagos.

Origin: Introduced, Questionable Native.

References: Linsley, E.G. et al. (1966), von Aesch, L. et al. (2005), Wheeler, W.M. et al. (1924).

68. *Solenopsis gnoma* Pacheco, Herrera & Mackay, 2007
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Native, Questionable Endemic.
References: Pacheco, J. et al. (2007).
69. *Spalangia cameroni* Perkins, 1910
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
70. *Spalangia drosophilae* Ashmead, 1887
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
71. *Spalangia endius* Walker, 1839
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
72. *Strumigenys emmae* (Emery, 1890)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
73. *Strumigenys louisianae* Roger, 1863
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: von Aesch, L. et al. (2005).
74. *Tapinoma melanocephalum* (Fabricius, 1793)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Linsley, E.G. et al. (1966), Lubin, Y.D. et al. (1984), McMullen, C.K. et al. (2011), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), von Aesch, L. et al. (2005), Wheeler, W.M. et al. (1924).
75. *Tetramorium bicarinatum* (Nylander, 1846)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2008), von Aesch, L. et al. (2005).
76. *Tetramorium caldarium* (Roger, 1857)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: von Aesch, L. et al. (2005).

77. *Tetramorium cf. lanuginosum* Mayr, 1810
Taxon status: The identification of this taxon or its occurrence in Galapagos is doubtful.
Origin: Introduced, Accidental.
78. *Tetramorium lanuginosum* Mayr, 1870
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
79. *Tetramorium lucayanum* Wheeler, 1905
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Herrera, H.W. et al. (2014).
80. *Tetramorium simillimum* (F. Smith, 1851)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Linsley, E.G. et al. (1966), Lubin, Y.D. et al. (1984), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), von Aesch, L. et al. (2005), Wheeler, W.M. et al. (1933).
81. *Trissolcus teretis* Johnson
Taxon status: Taxonomic status unresolved or unrevised.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998).
82. *Venturia canescens* Gravenhorst, 1829
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Peck, S.B. et al. (1998), Peck, S.B. et al. (1996).
83. *Wasmannia auropunctata* (Roger, 1863)
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Introduced, Accidental.
References: Causton, C.E. et al. (2006), Causton, C.E. et al. (2005), Causton, C.E. et al. (2012), Causton, C.E. et al. (2008), Causton, C.E. et al. (2012), Causton, C.E. et al. (2008), Fournier, D. et al. (2005), Herrera, H.W. et al. (2008), Holway, D.A. et al. (2002), Linsley, E.G. et al. (1977), Lubin, Y.D. et al. (1984), McMullen, C.K. et al. (2010), Orivel, J. et al. (2009), Peck, S.B. et al. (1998), Peck, S.B. et al. (1996), Peck, S.B. et al. (1986), Peck, S.B. et al. (1996), Peck, S.B. et al. (1986), Roque-Albelo, L. et al. (1999), von Aesch, L. et al. (2005).
84. *Xylocopa darwini* Cockerell, 1926
Taxon status: Accepted name; taxon occurs in Galapagos.
Origin: Native, Endemic.
References: Abedrabbo, S. et al. (1991), Cockerell, T.D.A. et al. (1935), Helsen, P. et al. (2008), Jaramillo, P. et al. (2010), Jaramillo, P. et al. (2010), Linsley, E.G. et al. (1966), McMullen, C.K. et al. (1987), McMullen, C.K. et al. (2010), McMullen, C.K. et al. (2011), Parkin, P. et al. (1972).

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