

A BIBLIOGRAPHY OF RECENT PUBLICATIONS

ON THE DWARF MISTLETOE

ARCEUTHOBIVM AMERICANUM

by

J. A. Muir

Forest Research Laboratory

Calgary, Alberta

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INTRODUCTION

Dwarf mistletoe (Arceuthobium americanum Nutt.) is a parasitic seed plant on lodgepole pine (Pinus contorta var. latifolia) and jack pine (P. banksiana). It is widely distributed in western Canada (36) and in some regions constitutes a serious problem in the management of lodgepole and jack pine forests (8, 9, 15).

This bibliography provides a source of recent information on dwarf mistletoe biology and control, with emphasis on dwarf mistletoe in Alberta. The references are listed under the following subject categories:

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BIBLIOGRAPHY

I. Dwarf mistletoes in general

1. Gill, L. S. 1935. *Arceuthobium* in the United States. *Conn. Acad. Arts and Sci. Trans.* 32:111-245.
2. Gill, L. S. and F. G. Hawksworth. 1961. The mistletoes: a literature review. U. S. Dept. Agr., Tech. Bull. 1242. 87pp.
3. Greenham, C. G. and F. G. Hawksworth. 1964. Known and potential hazards to forest production by the mistletoes and dwarfmistletoes. FAO/IUFRO Symposium on internationally dangerous forest diseases and insects, Oxford, 1964. Meeting no. V, (Vol. 1), 11pp.
4. Kuijt, J. 1955. Dwarf mistletoes. *Bot. Rev.* 21:569-627.
5. Leaphart, C. D. 1963. Dwarfmistletoes: a silvicultural challenge. *J. Forestry* 61:40-46.
6. Linnard, W. 1961. A summary of information on the control of Loranthaceae in forestry. *For. Abstr.* 22:345-352.

II. The dwarf mistletoe *Arceuthobium americanum*.

A. General

7. Gill, L. S. and F. G. Hawksworth. 1964. Dwarfmistletoe of lodgepole pine. (Revised) U. S. Dept. Agr., Forest Pest Leaflet 18. 7pp.
8. Nordin, V. J. 1954. Forest pathology in relation to the management of lodgepole pine in Alberta. *For. Chron.* 30:299-306.

9. Nordin, V. J. 1961. Dwarf mistletoe. In: L. A. Smithers.
1961. Lodgepole pine in Alberta. Canada Dept. of Forestry,
Bull. 127, pp. 90-93.

B. Hosts

10. Bouchier, R. J. 1952. Dwarf mistletoe on lodgepole and jack
pine. Canada Dept. Agr., Ann. Rep. For. Insect and Dis.
Survey 1952:122.
11. Bouchier, R. J. and J. Kuijt. 1953. Lodgepole pine mistletoe
on white spruce in Alberta. Canada Dept. Agr., For.
Biol. Div., Bi-monthly Prog. Rep. 2(5):2-3.
12. Graham, D. P. and C. D. Leaphart. 1961. Larch and lodgepole
pine dwarfmistletoes attack Scotch pine. J. Forestry
59:375-376.
13. Hawksworth, F. G. 1956. Notes on the host relationships of
Arceuthobium americanum and A. varinatum f. cryptopodum.
Plant Dis. Repr. 40:252.
14. Hawksworth, F. G. and R. S. Peterson. 1959. Notes on the hosts
of three pine dwarfmistletoes in northern Colorado.
Plant Dis. Repr. 43:109-110.
15. Riley, C. G. 1951. Mistletoe of jack pine. Canada Dept. Agr.
For. Biol. Div. 3pp.

C. Morphology, Anatomy

16. Cohen, L. I. 1963 (a). Studies on the ontogeny of the dwarf
mistletoes, Arceuthobium. I. Embryogeny and histogenesis.
Amer. J. Bot. 50:400-407.

17. Cohen, L. I. 1963 (b). Studies on the ontogeny of the dwarf mistletoes, Arceuthobium. II. Homology of the endophytic system. Amer. J. Bot. 50:409-417.
18. Cohen, L. I. 1965. Studies on the ontogeny of the dwarf mistletoes, Arceuthobium. III. Development of the inflorescence. Amer. J. Bot. 52:455-463.
19. Dowding, E. S. 1931. Floral morphology of Arceuthobium americanum. Bot. Gaz. 91:42-54.
20. Kuijt, J. 1960. Morphological aspects of parasitism in the dwarf mistletoes (Arceuthobium). Univ. Calif. Publ. Bot. 30:337-436.
21. Srivastava, L. M. and K. Esau. 1961 (a). Relation of dwarf-mistletoe (Arceuthobium) to the xylem tissue of conifers. I. Anatomy of parasite sinkers and their connection with host xylem. Amer. J. Bot. 48:159-167.
22. Srivastava, L. M. and K. Esau. 1961 (b). Relation of dwarf-mistletoe (Arceuthobium) to the xylem tissue of conifers. II. Effect of the parasite on the xylem anatomy of the host. Amer. J. Bot. 48:209-215.

D. Physiology

23. Hull, R. J. and O. A. Leonard. 1964 (a). Physiological aspects of parasitism in mistletoes (Arceuthobium and Phoradendron). I. The carbohydrate nutrition of mistletoe. Plant Physiol. 39:996-1007.

24. Hull, R. J. and O. A. Leonard. 1964 (b). Physiological aspects of parasitism in mistletoes (Arceuthobium and Phoradendron). II. The photosynthetic capacity of mistletoe. *Plant Physiol.* 39:1008-1017.
25. Leonard, O. A. and R. J. Hull. 1965. Translocation relationships in and between mistletoes and their hosts. *Hilgardia* 37:115-153.
26. Rediske, J. H. and K. R. Shea. 1961. The production and translocation of photosynthate in dwarfmistletoe and lodgepole pine. *Amer. J. Bot.* 48:447-452.

E. Reproduction

27. Hawksworth, F. G. 1961. Abnormal fruits and seeds in Arceuthobium. *Madrono* 16:96-101.
28. Kuijt, J. 1964. Vegetative propagation of dwarf mistletoes. *For. Science* 10:78-79.
29. Wicker, E. F. 1962. Rapid germination as a viability test for seed of Arceuthobium spp. (Abstr.) *Phytopathology* 52:757.
30. Wicker, E. F. 1967. Seed collection and storage for Arceuthobium spp. U. S. Forest Serv., Res. Paper INT-33. 13pp.
31. Wiens, D. 1964. Chromosome numbers in North American Loranthaceae (Arceuthobium, Phoradendron, Psittacanthus, Struthanthus). *Amer. J. Bot.* 51:1-6.

F. Hyperparasites

32. Bouchier, R. J. 1954. Septogloeum gillii on lodgepole pine mistletoe. Canada Dept. Agr., For. Biol. Div., Bi-monthly Prog. Rep. 10(2):3.

33. Bouchier, R. J. 1955. New host relationships for fungus parasites of the lodgepole pine mistletoe. Canada Dept. Agr., For. Biol. Div., Bi-monthly Prog. Rep. 11(4):2.
34. Dowding, E. S. 1931. Wallrothiella arceuthobii, a parasite of the jack-pine mistletoe. Can. J. Res. 5:219-230.
35. Kennett, C. E. 1963. Some species of Typhlodromus from dwarf mistletoes in North America (Acorina, Phytosuidae). Pan Pacific Entomol. 39:247-252.
36. Kuijt, J. 1963. Distribution of dwarf mistletoes and their fungus hyperparasites in western Canada. Natl. Mus. Can. Bull. 186, pp.134-148.
37. Mielke, J. L. 1959. Infection experiments with Septogloeum gillii, a fungus parasitic on dwarfmistletoe. J. Forestry 57:925-926.
38. Muir, J. A. 1967. Occurrence of Colletotrichum gloeosporioides on dwarf mistletoe (Arceuthobium americanum) in western Canada. Plant Dis. Repr. 51:798-799.
39. Peterson, R. S. 1966. Cronartium mycelium parasitizing gymnosperm and angiosperm tissues simultaneously. Mycologia 58:474-477.
40. Scharpf, R. F. 1964. Cultural variation and pathogenicity of the Colletotrichum blight fungus of dwarfmistletoe. (Abstr.) Phytopathology 54:905-906.
41. Shields, O. 1965. Callophrys (Mitoura) spinetorum and C. (M.) johnsoni: their known range, habits, variation and history. J. Res. Lepid. 4:233-250.

G. Ecology, Epidemiology

42. Dowding, E. S. 1929. The vegetation of Alberta. III. The sandhill areas of central Alberta with particular reference to the ecology of Arceuthobium americanum Nutt. J. Ecology 17:82-105.
43. Hawksworth, F. G. 1954. Observations on the age of lodgepole pine tissues susceptible to infection by Arceuthobium americanum. Phytopathology 44:552.
44. Hawksworth, F. G. 1956. Upper altitudinal limits of lodgepole pine dwarfmistletoe in the central Rocky mountains. Phytopathology 46:561-562.
45. Hawksworth, F. G. 1958. Rate of spread and intensification of dwarfmistletoe in young lodgepole pine stands. J. Forestry 56:404-407.
46. Hawksworth, F. G. 1960. Growth rate of dwarfmistletoe infections in relation to the crown class of the host. U. S. Forest Serv., Rocky Mtn. Forest and Range Expt. Sta. Res. Note 41. 4pp.
47. Hawksworth, F. G. 1965. Life tables for two species of dwarfmistletoe. I. Seed dispersal, interception, and movement. For. Sci. 11:142-151.
48. Hawksworth, F. G. and D. P. Graham. 1963. Spread and intensification of dwarfmistletoe in lodgepole pine reproduction. J. Forestry 61:587-591.
49. Hinds, T. E. and F. G. Hawksworth. 1965. Seed dispersal velocity in four dwarfmistletoes. Science 148:517-519.

50. Hinds, T. E., F. G. Hawksworth, and W. J. McGinnies. 1963.
Seed discharge in Arceuthobium: a photographic study.
Science 140:1236-1238.

H. Surveys, Damage

51. Baranyay, J. A. 1965. (Dwarf mistletoe) Detection and hazard appraisal. Canada Dept. For., Ann. Rep. For. Ent. and Path. Branch, p.130.
52. Baranyay, J. A. 1965. Growth impact and control of dwarf mistletoe in pine stands in Alberta. Proc. 13th West. Int. For. Dis. Work Conf., Kelowna, pp.9-16.
53. Baranyay, J. A. and R. J. Bouchier. 1960. Dwarf mistletoe of pine. Canada Dept. For., Ann. Rept. For. Insect and Dis. Survey 1960:89.
54. Hawksworth, F. G. 1958. Survey of lodgepole pine dwarf-mistletoe on the Roosevelt, Medicine Bow, and Bighorn National Forests. U. S. Forest Serv., Rocky Mtn. Forest and Range Expt. Sta., Sta. Paper 35. 13pp.
55. Hawksworth, F. G. and T. E. Hinds. 1964. Effects of dwarf-mistletoe on immature lodgepole pine stands in Colorado. J. Forestry 62:27-32.

I. Control

(see also nos. 5, 6, 47, 52, 53)

56. Bouchier, R. J. 1954. Chemical control of dwarf mistletoe on lodgepole pine in Alberta. Canada Dept. Agr., For. Biol. Div., Bi-monthly Prog. Rep. 10(1):4.

57. Hawksworth, F. G. 1961. Dwarfmistletoe brooms and other brooms in lodgepole pine. U. S. Forest Serv., Rocky Mtn. Forest and Range Expt. Sta., Res. Note 59. 3pp.
58. Hawksworth, F. G. and N. E. Johnson. 1961. Guides for pruning dwarfmistletoe-infected lodgepole pine branches. U. S. Forest Serv., Rocky Mtn. Forest and Range Expt. Sta., Res. Note 65. 4pp.
59. Kimmey, J. W. and D. P. Graham. 1960. Dwarfmistletoes of the Intermountain and Northern Rocky Mountain regions and suggestions for control. U. S. Forest Serv., Intermtn. Forest and Range Expt. Sta., Res. Paper 60. 19pp.
60. LeBarron, R. K. 1952. Silvicultural practices for lodgepole pine in Montana. U. S. Forest Serv., Northern Rocky Mtn. Forest and Range Expt. Sta., Sta. Paper 33. 19pp.
61. Parker, H. A. 1942. Control of mistletoe. Canada Dept. Mines and Resources. Land, Parks and Forest Branch. Silvic. Leaflet. 15. 2pp.