

Notes on miscellaneous mimosoid legumes (Leguminosae: Mimosoideae), mostly Australian

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Abstract

Cowan, R.S. Notes on miscellaneous mimosoid legumes (Leguminosae: Mimosoideae), mostly Australian. Nuytsia 11 (1): 11-19 (1996). Lectotypes have been selected for ten taxa of mimosoid legumes treated for the "Flora of Australia": *Albizia canescens* Benth., *Albizia plurijuga* Domin, *Albizia retusa* Benth., *Archidendron hendersonii* (F. Muell.) I. Nielsen, *Archidendron muellerianum* (Maiden & R. Baker) I. Nielsen, *Archidendropsis thozetiana* (F. Muell.) I. Nielsen, *Neptunia gracilis* Benth., *Neptunia gracilis* var. *villosula* Benth., *Neptunia major* (Benth.) Windler and *Neptunia monosperma* F. Muell. ex. Benth. Discussions are included concerning the typification of *Mimosa distachya* Vent., *Pararchidendron pruinatum* (Benth.) I. Nielsen and *Paraserianthes toona* (Bailey) I. Nielsen. In addition, a note is presented concerning the typification of *Mimosa pigra* L.; the disposition of the name *Albizia amoenissima* F. Muell. is discussed; and a new species, *Archidendron kanisii*, is described.

Introduction

In the course of preparing the account of the Mimosoideae (excluding *Acacia*) for the "Flora of Australia", it appeared advisable to stabilize the binomials of a number of the taxa by selecting lectotypes for the names. The approach used has been that described by Maslin and Cowan (1994): in simplest terms, lectotypification, as we have applied it to *Acacia* taxa, often involves the choice of a single specimen on a designated sheet to serve as the nomenclatural basis for a name, rather than designation of an entire collection or sheet which may have been made, deliberately or inadvertently, from more than a single plant. In the following account, the taxa lectotypified are arranged alphabetically, followed by notes on two taxa and a new species.

Lectotypifications and notes on types

Albizia canescens Benth., Fl. Austral. 2: 423 (1864).

Lectotype (here selected): Fitzroy and Bowen Rivers, [Queensland], [E.M.] Bowman (K); *isolecto*: MEL 594743. *Paralectotypes*: (1) Burdekin River, [Queensland], F. M[ueller] (K); (2) Rockhampton,

[Queensland], [A.] Thozet (K, MEL 594741, 594744, 594745, 594749; MEL 594747, 594748 = probable paralectotypes); (3) Rockhampton, [Queensland], [J.] Dallachy (MEL 594742; K and MEL 594746 = probable paralectotypes).

Because Bentham listed four collections (and in the absence of collection numbers others may have been involved), selection of a lectotype is necessary, even though all the material seen represents this species. The sheet chosen was annotated by the author in his hand with the published name; the isolectotype was also seen by him. The lectotype sheet bears two branchlets and a label with only "Queensland Bowman, Dallachy" in Bentham's hand; the upper right-hand specimen (the lectotype) is interpreted as being from the Bowman collection because it matches perfectly the isolectotype at MEL, which has a label with all the collection data given in the protologue but was not annotated by Bentham. The other branchlet on the left is interpreted as being part of the Dallachy collection cited. Some of the paralectotype specimens are listed as probable because of incomplete data on them. For example, the Thozet collection at K bears no collection number, but what is probably the same collection at MEL has 265 as the collection number; MEL also has several additional specimens that are probably parts of the same collection. Similarly, the Dallachy paralectotype from Rockhampton has the date 12 Febr 1862 on the MEL sheet but lacks a date on the K sheet.

Albizia plurijuga Domin, *Biblioth. Bot.* 3: 274 (1921).

Lectotype (here selected): Queensland, in den Savannenwaldern bei Calcifar (im Chillagoe-Distrikte), February 1910, K. Domin 5416 (PR). *Paralectotypes*: same location and date, K. Domin 5415, 5417 (PR).

Examination of the original material, kindly made available by the herbarium of the National Museum in Prague, leaves no doubt that this name is synonymous with *A. canescens*. Since three collections were involved, the most complete and representative one is selected as the lectotype of the name.

Albizia retusa Benth., *London J. Bot.* 3: 90 (1844).

Lectotype (here selected): Prov. Albay, Luzon, Philippine Is., 1841, H. Cuming 1223 (K); *isolecto*: (K). *Paralectotype*: Prov. Batangas, Luzon, Philippine Is., 1841, H. Cuming 1593 (K).

Bentham in the protologue cited two collections and, although they represent the same taxon, lectotypification of the name is prudent, given the state of knowledge of the flora in the type region. Bentham annotated both collections at K with the published name and both are flowering; the lectotype is selected from the more complete collection with at least one duplicate sheet (at K). This is the same material referred to as the holotype by I. Nielsen (1985: 30).

The type material differs from most Australian specimens in having more pairs of pinnae, appressed-puberulous, oblong leaflets, as well as puberulous inflorescence axes and flowers. Unfortunately, there is altogether too little Australian material to make a decision, but future research may well require recognition of it as distinct from the rest of the subspecies.

Archidendron hendersonii (F. Muell.) Nielsen, *Nord. J. Bot.* 2: 481 (1982). - *Pithecellobium hendersonii* F. Muell., *Fragm.* 5:191 (1866).

Lectotype (here selected): Ballina, Richmond R. Heads, [New South Wales], J.A. Henderson (MEL 79815). *Paralectotype*: Ballina, [New South Wales], C. Moore (MEL 79816).

Mueller in the protologue cited two collections from the same locality. The sheet collected by the person for whom the species is named and which is annotated by the author of the specific epithet is selected as lectotype of the name.

Archidendron muellerianum (Maiden & R. Baker) Nielsen, Nord. J. Bot. 2: 485 (1982). - *Albizia muelleriana* Maiden & R. Baker, Proc. Linn. Soc. New South Wales, ser. 2, 10: 585, pl. 52 (1896).

Lectotype (here selected): Marshall Fall, Alstonville, [New South Wales], Dec. 1892, W. B[aeuerlen] (*lecto*: NSW 147408); *isolecto*: (MEL 583109). *Paralectotypes*: (1) [Tintenbar], Richmond River, [New South Wales], 20 Nov. 1895, W. B[aeuerlen] (MEL 583107 & MEL 583108); (2) Mullumbimby, Brunswick River, [New South Wales], W. Baeuerlen (NSW, n.v.).

In describing the species as an *Albizia*, the authors list three collections by W. Baeuerlen from three different localities. They imply, perhaps, that the collection from which the lectotype is selected is the more important by listing it first. Consequently the specimen annotated by the authors from the first-named collection is chosen as lectotype, even though all three collections represent what is presently regarded as the same taxon.

Archidendropsis thozetiana (F. Muell.) Nielsen, Adansonia 5: 326 (1983). - *Acacia thozetiana* F. Muell., Fragm. 4: 9 (1863). - *Albizia thozetiana* (F. Muell.) F. Muell. ex Benth., Fl. Austral. 2: 422 (1864).

Lectotype (here selected): Fort Cooper, [Queensland], A. T[hozet] (MEL 595338). *Paralectotypes*: Thozet's Creek, J. Dallachy (MEL 595339, 595340, 595342 and 595377); MEL 595341 also bears J. Dallachy specimens from the same locality but the label in the collector's hand gives the collection number as 408 and the date 9 March 1863.

Choice of a lectotype is necessary because Mueller cited several collections in the protologue of *Acacia thozetiana* and these were also cited by Bentham in making the transfer of the species to *Albizia*; most of these have been seen and they all represent the same taxon. The lectotype sheet cited does not bear Bentham's determination, but that he did study it is indicated by the "B" on the reverse of the upper left-hand corner of the label. It is the only specimen seen from Fort Cooper.

Neptunia gracilis Benth., J. Bot. (Hooker) 4: 355 (1842).

Lectotype (here selected): sub-tropical New Holland, 6 December 1846, T.L. Mitchell 442 (K-Herb. Bentham). *Paralectotypes*: (1) Camp 29, sub-tropical New Holland, 6 October 1846, T.L. Mitchell 599 (K); (2) interior of New Holland, T.L. Mitchell Exped., 1838 (K); (3) Nov. Holl., [F.] Bauer (K)

In the protologue, Bentham cited four collections; all are represented at Herb. Kew and all represent the same taxon. A lectotype is chosen to fix the application of the name. Windler (1966) only called attention to the fact that Bentham had not designated a type.

Neptunia gracilis Benth. var. **villosula** Benth., Fl. Austral. 2: 300 (1864).

Lectotype (here selected): Sturts Creek, [Western Australia/Northern Territory border], *F. Mueller* (K-Herb. Hooker, lower right-hand specimen); *isolecto*: MEL 596306. *Paralectotypes*: (1) Gulf of Carpentaria, [Queensland], [*W.*] *Landsborough* (MEL 596307); (2) between Darling [River] and Coopers Ck, [New South Wales], *Neilson* (MEL 596308).

A lectotype is chosen to fix the varietal name, even though it is a synonym, to one of the collections referred to by Bentham in his protologue; all represent the typical form of *N. gracilis* and all were seen by the author of the name. While recognizing the synonymy involved, Windler (1966) failed to name a type of any sort.

Neptunia major (Benth.) Windler, Austral. J. Bot. 14: 408 (1966). - *N. gracilis* Benth. var. *major* Benth., Fl. Austral. 2: 300 (1864).

Lectotype (here selected): Rockhampton, [Queensland], [*J.*] *Dallachy* (K). *Paralectotypes*: (1) Burdekin Expedition, [Queensland] (MEL 596305); (2) Bay of Inlets, Queensland, 1770, *J. Banks & D. Solander* (BM *n.v.*, BRI 392178). The last-named collection is *N. gracilis* Benth. var. *gracilis*.

Bentham cited three collectors and collection sites in the protologue and in view of the fine division of taxa in the genus it is worth lectotypifying the name. The Banks and Solander collection might serve this purpose but it appears to be *Neptunia gracilis* f. *gracilis*; there is no basal gland on the petiole and it is impossible to know the habit of the plant from which the collection was taken. Both the other collections represent the species but only the Dallachy specimen at K is annotated by the author of the name, although he also saw the Burdekin Expedition one. Windler (1966) only listed the collections seen by Bentham.

Neptunia monosperma F. Muell. ex Benth., Fl. Austral. 2: 300 (1864).

Lectotype (here selected): Gulf of Carpentaria, [?Queensland/Northern Territory], [*W.*] *Landsborough* (K, left-hand specimen); *isolecto*: (MEL 596310). *Paralectotypes*: (1) upper Victoria R., [Northern Territory], Dec 1855, *F. Mueller* (K, MEL 596309); (2) Albert River, [Queensland], [*D.*] *Henne* (MEL 596311).

In the protologue, Bentham lists three collectors and collection sites, but the Victoria River material collected by F. Mueller which Windler (1966) cites as "Type" in Mueller's herbarium represents three taxa: *N. monosperma*, *N. dimorphantha* and *N. gracilis* f. *glandulosa*. On the K sheet, specimens of the same three taxa are mixed, the two specimens on the left being *N. monosperma*, the centre one *N. dimorphantha* and the right-hand one *N. gracilis* f. *glandulosa*. That Bentham recognized the mixture is indicated by two slips in his hand on the sheet at MEL, one bearing the annotation "*N. monosperma*", the other "*N. gracilis* var. *villosula*", a synonym of *N. gracilis*. Consequently, although it would appear on the surface that Windler inadvertently had chosen a lectotype by naming the first of the three collections cited by Bentham, most of the material does not accord completely with the protologue. Moreover, Windler in his revision did not deliberately choose lectotypes but simply repeated the collection(s) cited in the protologue, and on this evidence alone, one might argue that he did not express a choice. It should also be noted that the herb. K specimen of Mueller gives only "Victoria River" and the MEL sheet of what is presumably the same collection has "Upper Victoria River/ Dec 1855", the locality as cited by Bentham.

The W. Lansborough specimen at Herb. K is chosen as lectotype of the name because it bears the publishing author's annotation in his own hand. The lectotype and the paralectotypes may have been collected in the Northern Territory but since so much more of the Gulf coastline is in Queensland, they are shown as Queensland/Northern Territory collections.

Mimosa distachya Vent., *Descr. Pl. Nouv. Jard. J.M. Cels* 5: 20 (1800), non Cav. (1795). *Type*: western coast of Australia at 34° latitude, probably near Esperance or in the islands off the coast at Esperance, [1792-1793], *F. Lahaie* (Voyage of La Recherche and L'Esperance), (presumably P but *n.v.*)

There is no evidence easily available that confirms the type of *Mimosa distachya* as having been collected by F. Lahaie, but in the *Collectors' Index* (1973), the inference under that name is that the collection came from the expedition cited above, even though Ventenat, the author of the binomial, spelled the collector's name "Lahaye" from whom he says he obtained the material. Neither version of the spelling of the collector's name appears in Marchant (1982) and it is likely that the specimen was collected by either Riche or one of the other botanists on the expedition. That it was collected in the Esperance area is highly likely, since it is the only place within the original range of the species in which the expedition landed a party ashore.

Paraserianthes toona (Bailey) Nielsen, *Bull. Mus. Natn. Hist. Nat. Paris*, ser. 4, vol. 5. *Adansonia* No. 3: 327; *Adansonia* No. 4: 356-357 (1983). - *Albizia toona* Bailey, *Syn. Queensland Fl., Suppl.*: 18 (1886). *Type*: Bowen, [Queensland, *F.M. Bailey*]; (*lecto*: BRI 025020, *fide* I. Nielsen, *loc. cit.* p. 357).

While the choice of the lectotype by Nielsen is very probably correct, it is based on the assumption that it is a Bailey collection because his manuscript description of the species is mounted on the sheet. In view of the many examples of mixed materials on herbarium sheets, one may retain a small doubt about the choice.

Pararchidendron pruinosum (Benth.) Nielsen, *Bull. Mus. Natn. Hist. Nat. Paris*, ser. 4, vol. 5. *Adansonia* No. 3: 327 (1983). - *Pithecellobium pruinosum* Benth., *London J. Bot.* 3: 211 (1844).

Lectotype (here amended): Brisbane River, New South Wales, Oct. 1827, *A. Cunningham* 102 (K-Herb. Cunningham, left-hand fruiting); *isolecto*: K-Herb. Cunningham. *Paralectotypes*: Brisbane River, Sept. 1824, *A. Cunningham* 70 (K-Herb. Cunningham; probably also represented in Herb. Bentham and Herb. Hooker but collection number on those sheets lacking).

Nielsen (1984) lectotypified this species on the basis of "A. *Cunningham* 102/1824, N.S. Wales, Brisbane River (K)", without discussion; the situation is a bit more complex and merits clarification.

There are three sheets at K, all bearing branchlets of this species and a few notes on each of the three sheets follows.

(1) The sheet from Cunningham's herbarium, presented by Robert Heward in 1862, has a single label in his hand showing 102/1827 and two of the three branchlets on the sheet have tied-on field tags, the left hand (fruiting) one with the notation "seed sent to Kew Feb. 1829/102/spn showing flowers"; the right hand (fruiting) specimen bears a tag with "1828/102"; and, finally, the Cunningham sheet has a central specimen (flowering) with a tag giving "70/Sept 1824". This sheet is not annotated by

Bentham, but that the material was probably used in drawing up the protologue validating the base name is suggested by the fact that he describes pods and the material in both his own and Hooker's herbarium lacks mature fruits.

(2) The Herb. Bentham sheet bears two specimens (neither with a collection number), one in flower at the top with a printed label, giving the type locality and with Bentham's annotation on it; the other specimen is in very young fruit and was collected by Bidwill and its label bears Bentham's annotation as well.

(3) The Herb. Hooker sheet has two specimens which may have been taken from the same tree: the left-hand specimen has mature leaves but is sterile; the right-hand specimen appears to be a duplicate of the flowering material on the Herb. Cunningham and Herb. Benth. sheets. The flowering branchlet bears a label in Cunningham's hand giving the type locality of Brisbane River but no collection number.

Even though the Cunningham Herbarium sheet is not annotated by Bentham, it is the only one with collection numbers and must therefore be the sheet which Nielsen identified as bearing the lectotype; however, he also did not annotate the sheet. Since there are at least two, possibly three, collections represented on the sheet, one of the specimens should be selected as the lectotype of the name. In view of Nielsen's having nominated *Cunningham* 102 as the lectotype, one of the two specimens tagged 102, both fruiting, must be chosen; the most representative of these, the specimen on the left side of the sheet, is chosen for this role. The date of collection must be changed to October 1827, the date given on the main label for the sheet.

Notes on two mimosoid taxa

Albizia amoenissima F. Muell., *Fragmenta* 8: 165 (1874). *Type*: extreme northeastern New South Wales, W. Guilfoyle (MEL 594731).

The specimen cited, the only material I have found in any of the major Australian herbaria, bears the annotation in (?) Mueller's hand: "Northern-Eastern boundary of N.S.W." and on the line below, in the place where the collector of Mueller's specimens is customarily indicated, is inscribed what appears to be a "G". This, I assume, refers to W.R. Guilfoyle, who is cited as the collector in the protologue. The material on the sheet consists of a leaf in two parts, the axes of an inflorescence and, in the packet attached, one complete flower that had been dissected (by Mueller?) and several buds, as well as numerous leaflets. The pinnae, in the limited sample available, occur in about 22 pairs with alternate leaflets in about 20 pairs. The sessile flowers have a calyx 10 mm long (including the 3 mm long, ovate-deltate lobes); the corolla tube is about 20 mm long with the narrowly lanceolate-triangular, reflexed lobes 8 mm long; and the stamens 40 mm long, the tube exerted about 6 mm beyond the mouth of the corolla. Both calyx and corolla are densely golden-brown tomentulose.

Bailey (1883) included the entity along with other *Albizia* taxa but seven years later in his *Queensland Flora* (1900), he synonymized it under *Pithecellobium moniliferum* (DC.) Benth. Kostermans (1954) followed suit but treated it as a synonym of *Cathormion umbellatum* (Vahl) Kostermans, a disposition accepted by Nielsen (1992) under subspecies *moniliforme* (DC.) Brummitt. It seems obvious that neither Bailey, Kostermans nor Nielsen saw the type, for the material represents a wholly different taxon from *Cathormion*.

While I have not been able to identify the specimen with any species of the genus *Serianthes*, its character states are surely those of the genus, which is not known to occur in Australia. There appear to be at least three possible scenarios to account for the apparent occurrence of the taxon in north-eastern New South Wales: (1) the specimen was grown from seed obtained by Guilfoyle in the course of his visit aboard the *Challenger* expedition in 1868 to several Pacific island groups north-east of Australia; (2) the specimen was collected during the course of his trip on the *Challenger* expedition and sent to Mueller after the Guilfoyle family had taken up a large parcel of land in the Tweed Heads area of New South Wales; and (3) the specimen represents a species which once occurred in New South Wales but has since perhaps become extinct.

The first explanation, that the specimen came from a tree grown at the Tweed Heads property from seed collected on one of the islands visited in 1868, appears unlikely, since only five years had elapsed between his return from the trip and publication of the binomial by Mueller and it is improbable that growth from seed to flower could occur in such a short time.

The second alternative, that Guilfoyle obtained the specimen either during the 1868 *Challenger* expedition or in connection with the nursery business carried on by the family, also seems unlikely. Assuming that the specimen was sent to Mueller from the Tweed Heads property, he might well have concluded, in his great enthusiasm for novelties, that the plant was growing at Tweed Heads and described it as such. The problem with this explanation is that the itinerary of the *Challenger* did not include many areas rich in *Serianthes* species; it included Pago Pago in American Samoa, Vavau, Fiji, the New Hebrides and New Caledonia. The genus is known commonly from New Caledonia but also occurs in Fiji. Consequently, accepting this explanation, one should attempt to identify the specimen with a New Caledonian or Fijian species. The nearest species in Nielsen (1983) is *S. sachetae* Fosberg but the match is not very satisfactory, for *S. sachetae* has fewer pairs of pinnae and more or less sericeous leaflets and somewhat pedicellate, smaller flowers. It occurs in the Noumea area of New Caledonia where the *Challenger* is known to have stayed briefly.

Finally, one must consider the possibility that the single specimen was taken from a tree growing wild in the forests of north-eastern New South Wales and that the species has become extinct as a consequence of the deforestation of that area. If one accepts this scenario, it follows that a new combination of the species epithet with *Serianthes* would be required. This hypothetical explanation is attractive, but to create a name for something that no longer exists, and perhaps never did exist in Australia, is an unnecessary addition to the list of non-functional binomials. The identity of *Albizia amoenissima* cannot be established with available information and will necessarily have to await rediscovery of the plant or further evidence to solve the mystery.

Mimosa pigra L., Cent. Pl. 1: 13 (1755).

If the Rules were strictly applied, this species would have to be referred to as *M. pellita* Humboldt & Bonpland ex Willd., as Barneby (1989: 139) has so cogently argued. However, rather than adhere to the stabilizing effect of following priority and the type method in the International Code of Botanical Nomenclature, past errors have been rendered artificially correct by the choice of a weedy specimen from Mozambique by Verdcourt (1989) as the type of *M. pigra* *nom. cons.*, a native of tropical South America!! Name changes are unfortunate but not so disastrous as the proponents of retrograde, generalized, contrived schemes to achieve nomenclatural stability would have us believe.

New species

Archidendron kanisii R.S. Cowan, *sp. nov.*

Arbor parva vel frutex 3 m altus partibus omnibus glabris. Folia bipinnata pinnis unijugatis; petioli teretes 1.5-2.5 cm longi, nectario elongato, apicale, anguste oblongo, depresso 2.5-3.8 mm longo ferenti; pinnarum axes 4-6 cm longi, nectario circolare ad ovale apicale ferenti; foliola 1 1/2-jugata, petiolulis 3-5 mm longis, laminis ellipticis ad anguste ellipticis oblongo-ellipticis, cuneatis et aequalateralibus basaliter, apice producto sed obtuso, 8.5-16.5 cm longis et 2.5-4 cm latis. Inflorescentiae axillares composito-umbellatae, circa 22 cm longae, pedunculis gracilibus 2.5-4.2 cm longis, inter se 5-10 floribus ferentibus. Flores cremei pentameri; calyx tubularis 4 mm longus, lobis triangularibus 0.1 mm longis; corolla peranguste infundibularis 11.5 mm longa, lobis lanceolatis 2.5 mm longis inclusis. Stamina numerosa circa 15 mm longa, ad basem in tubo circa 6 mm longo conjuncta. Gynoecium solitarium stipitatum anguste oblongum. Legumina et semina non vidi.

Typus: branch of Cooper Creek, Cook District, Queensland, 10 December 1986, G. Sankowsky 573 & N. Sankowsky (*holo*: BRI; *iso*: BRI).

Small tree or shrub 3 m tall, completely glabrous in all parts. Branchlets terete with several, low, longitudinal ribs, tan-brown. Leaves bipinnate with unijugate pinnae; petiole terete, 1.5-2.5 cm long with apical, elongate, narrowly oblong, depressed nectary 2.5-3.8 mm long; axis of pinnae 4-6 cm long with circular to oval, apical nectary; leaflets 1 1/2-jugate (basal leaflet solitary), the petiolules 3-5 mm long, the lamina elliptic to narrowly elliptic and oblong-elliptic, cuneate and equilateral at base, acuminate with blunt tip apically, 8.5-16.5 cm long, 2.5-4 cm wide; nervature more or less raised on both upper and lower surfaces, the tertiary nerves coarsely reticulate. Inflorescences axillary, compound-umbellate, c. 22 cm long; peduncles slender, 2.5-4.2 cm long, bearing 5-10 flowers each; bracteoles lanceolate, acute, c. 0.75 mm long, ciliate. Flowers cream-coloured, 5-merous; calyx tubular, c. 4 mm long with triangular lobes c. 0.1 mm long; corolla very narrowly funnel-form, 11.5 mm long including lanceolate lobes c. 2.5 mm long. Stamens numerous, c. 15 mm long, united in a basal tube c. 6 mm long. Gynoecium solitary, stipitate, narrowly oblong, c. 2.5 mm long. Pods and seeds not seen.

Specimens examined. Only two specimens of the type collection have been seen.

Distribution. Known only from the type locality about 60 km south of Cooktown, Queensland in rainforest.

Etymology. Andries [Andrew] Kanis was preparing text for the "Flora of Australia" on the mimosoid legumes at the time of his sudden death in 1986. Consequently, it seems altogether fitting to name this new species in his memory and to recognize his contributions. I have used some of his materials and notes in the preparation of the manuscript of the subfamily, minus *Acacia*, for the Flora and naming the species for him is meant as a personal acknowledgement of his posthumous assistance.

Affinity. The new species is closely related to *A. muellerianum* but differs in a number of character states: *A. muellerianum* has a small, circular extrafloral nectary at the apex of the petiole, generally smaller leaflets, much shorter, more or less appressed puberulous flowers and inflorescences.

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