Supplementary Table 1. List of identification keys used for each of the genera sampled in the San Bernardino Valley

Andrenidae

Anylandrena (Zavortink 1974)
Andrena – many identifications by John S. Ascher, morphospecies by J.S. Ascher and R.L. Minckley (Bouseman & LaBerge 1979; LaBerge 1969, 1971, 1973, 1977, 1985, 1986, 1987; LaBerge & Bouseman 1970; LaBerge & Ribble 1975; Ribble 1968; Thorp 1969)
Protoxea (Hurd Jr. & Linsley 1976)
Calliopsis (Danforth 1994; Rozen Jr. 1958; Shinn 1967)
Macrotera (Danforth 1996; Snelling & Danforth 1992; Timberlake 1954)
Perdita – many identifications by Douglas A. Yanega (Portman et al. 2016; Timberlake 1954, 1956, 1958, 1960, 1962, 1964a, 1968, 1971, 1980a)
Protandrena - (Timberlake 1964b, 1967, 1975, 1976)
Pseudopanurgus (Timberlake 1973)

Apidae

Ancyloscelis (Michener 1942)
Anthophora- identifications of *Anthophora* (*Micranthophora) by* Michael C. Orr and some other *Anthophora by* Robert Brooks (Brooks 1988; Orr et al. 2018)
Centris(Snelling 1974, 1984; Vivallo 2020)
Diadasia - Sedonia Sipes, unpublished key
Eucera (Timberlake 1969)
Martinapis (Zavortink & LaBerge 1976)
Melissodes - many identifications by Karen Wright (LaBerge 1956a,b, 1961)
Svastra (LaBerge 1958)
Peponapis and *Xenoglossa* (Hurd Jr. & Linsley 1966, 1967a,b)
Tetraloniella (Laberge 2001)
Anthophorula and *Exomalopsis* (Silveira 1995; Timberlake 1980b)
Zacosmia (Hurd Jr. & Linsley 1951)
Oreopasites (Linsley 1941; Rozen Jr. 1992)
Holcopasites and *Neopasites* (Hurd Jr. & Linsley 1972; Linsley 1943a)
Brachynomada (Rozen Jr. 1994; Snelling & Rozen Jr. 1987)
Paranomada (Linsley 1943b, 1945)
Triopasites (Rozen Jr. 1997)
Epeolus (Onuferko 2018)
Triepeolus - material identified by M. Rightmyer (Rightmyer 2008)
Melecta (Hurd Jr. & Linsley 1951; Linsley 1939)
Neolarra (Michener 1939a; Shanks 1978)
Nomada- identified to morphospecies by R.L. Minckley
Ceratina (Daly 1973)
Xylocopa (Hurd Jr. 1961)

Colletidae

Colletes (Stephen 1954)
Caupolicana (Vergara & Michener 2004)
Hylaeus (Snelling 1966a,b)

Halictidae

Augochlorella (Ordway 1966)
Agapostemon (Roberts 1972)
Halictus (Sandhouse 1924)
Lasioglossum- many identifications by Jason Gibbs and Joel Gardner (Gardner & Gibbs 2020; McGinley 1986; Sandhouse 1924)
Sphecodes- morphospecies separated by R.L. Minckley
Dieunomia and *Nomia* (Blair 1935; Cross 1958; Ribble 1965)
Conanthalictus and *Sphecodosoma* (Timberlake 1961)
Dufourea – sorted to morphospecies by R.L. Minckley
Protodufourea (Bohart & Griswold 1997)

Megachilidae

Anthidium- identified by Victor Gonzalez-Betancourt (Gonzalez & Griswold 2013; Schwarz 1926)
Dianthidium (Grigarick & Stange 1968)
Stelis- most sorted to morphospecies by R.L. Minckley (Parker & Bohart 1979)
Dioxys (Hurd Jr. 1958)
Lithurgopsis (Mitchell 1937a; Snelling 1990)
Coelioxys (Mitchell 1973)
Megachile (Mitchell 1935, 1936, 1937b)
Ashmeadiella (Hurd Jr. & Michener 1955; Michener 1939b)
Atoposmia (Hurd Jr. & Michener 1955; Michener 1943)
Heriades (Hurd Jr. & Michener 1955; Michener 1938, 1954)
Hoplitis (Hurd Jr. & Michener 1955; Michener 1947)
Osmia- identified by Molly G. Rightmyer (Griswold & Rightmyer 2017; Rightmyer et al. 2010)

Melittidae

Hesperapis (Stage 1966)

Literature cited

Blair BH. 1935. The bees of the group *Dieunomia*. *J. New York Entomol. Soc.* 43(2):201–15
Bohart GE, Griswold TL. 1997. A revision of the rophitine genus Protodufourea. *J. Kansas Entomol. Soc.* 69(4):177–84
Bouseman JK, LaBerge WE. 1979. A revision of the bees of the genus *Andrena* of the Western Hemisphere. Part IX. Subgenus *Melandrena*. *Trans. Am. Entomol. Soc.* 104(3/4):275–389
Brooks RW. 1988. Systematics and phylogeny of anthophorine bees (Hymenoptera; Anthophoridae: Anthophorini). *Univ. Kansas Sci. Bull.* 53:437–575
Cross EA. 1958. A revision of the bees of the subgenus Epinomia in the New World. *Univ. Kansas Sci. Bull.* 38:1261–1301
Daly H V. 1973. Bees of the genus *Ceratina* in America north of Mexico (Hymenoptera:

Apoidea). *Univ. Calif. Publ. Entomol.* 74:1–114
Danforth BN. 1994. Taxonomic review of *Calliopsis* subgenus *Hypomacrotera* (Hymenoptera: Andrenidae), with special emphasis on the distributions and host plant associations. *Pan-Pac. Entomol.* 70:283–300
Danforth BN. 1996. Phylogenetic analysis and taxonomic revision of the *Perdita* subgenera *Macrotera*, *Macroteropsis*, *Macroterella* and *Cockerellula* (Hymenoptera: Andrenidae). *Univ. Kansas Sci. Bull.* 55(16):635–92
Gardner J, Gibbs J. 2020. The 'red-tailed' *Lasioglossum* (*Dialictus*) (Hymenoptera: Halictidae) of the western Nearctic. *Eur. J. Taxon.* 725:1–242
Gonzalez VH, Griswold TL. 2013. Wool carder bees of the genus *Anthidium* in the Western Hemisphere (Hymenoptera: Megachilidae): Diversity, host plant associations, phylogeny, and biogeography. *Zool. J. Linn. Soc.* 168(2):221–425
Grigarick AA, Stange LA. 1968. The pollen-collecting bees of the Anthidiini of California. *Bull. Calif. Insect Surv.* 9:1–113
Griswold T, Rightmyer MG. 2017. A revision of the subgenus *Osmia* (*Diceratosmia*), with descriptions of four new species (Hymenoptera, Megachilidae). *Zootaxa*. 4337:1–37
Hurd Jr. PD. 1958. American bees of the genus *Dioxys* Lepeletier and Serville. *Univ. Calif. Publ. Entomol.* 14:275–302
Hurd Jr. PD. 1961. A synopsis of the carpenter bees belonging to the subgenus *Xylocopoides* Michener. *Trans. Am. Entomol. Soc.* 87:247–57
Hurd Jr. PD, Linsley EG. 1951. The melectine bees of California. *Bull. Calif. Insect Surv.* 1(5):119–40
Hurd Jr. PD, Linsley EG. 1966. The Mexican squash and gourd bees of the genus *Peponapis*. *Ann. Entomol. Soc. Am.* 59:835–51
Hurd Jr. PD, Linsley EG. 1967a. South American squash and gourd bees of the genus *Peponapis*. *Ann. Entomol. Soc. Am.* 60:647–61
Hurd Jr. PD, Linsley EG. 1967b. Squash and gourd bees of the genus *Xenoglossa*. *Ann. Entomol. Soc. Am.* 60:988–1007
Hurd Jr. PD, Linsley EG. 1972. Parasitic bees of the genus *Holcopasites* Ashmead. *Smithson. Contrib. to Zool.* 114:1–41
Hurd Jr. PD, Linsley EG. 1976. The bee family Oxaeidae with a revision of the North American species. *Smithson. Contrib. to Zool.* 220:1–75
Hurd Jr. PD, Michener CD. 1955. The megachiline bees of California (Hymenoptera: Megachilidae). *Bull. Calif. Insect Surv.* 3:1–248
Laberge WE. 2001. Revision of the bees of the genus *Tetraloniella* in the New World (Hymenoptera: Apidae). *Illinois Nat. Hist. Surv. Bull.* 36:67–102
LaBerge WE. 1956a. A revision of the bees of the genus *Melissodes* in North and Central America, Part II. *Univ. Kansas Sci. Bull.* 38:533–78
LaBerge WE. 1956b. A revision of the bees of the genus *Melissodes* in North and Central America, Part I. *Univ. Kansas Sci. Bull.* 37:911–1194
LaBerge WE. 1958. Notes on the North and Central American bees of the genus *Svastra* Holmberg (Hymenoptera: Apidae). *J. Kansas Entomol. Soc.* 31(4):266–73
LaBerge WE. 1961. A revision of the bees of the genus *Melissodes* in North and Central America, Part III. *Univ. Kansas Sci. Bull.* 42:283–663

LaBerge WE. 1969. A revision of the bees of the genus *Andrena* of the Western Hemisphere. Part II. *Plastandrena, Aporandrena, Charitandrena*. *Trans. Am. Entomol. Soc.* 95(1):1–47
LaBerge WE. 1971. A revision of the bees of the genus *Andrena* of the Western Hemisphere. Part IV. *Scrapteropsis*, *Xiphandrena* and *Rhaphandrena*. *Trans. Am. Entomol. Soc.* 97(3):441–520
LaBerge WE. 1973. A revision of the bees of the genus *Andrena* of the western hemisphere. Part VI. Subgenus *Trachandrena*. *Trans. Am. Entomol. Soc.* 99(3):235–371
LaBerge WE. 1977. A revision of the bees of the genus *Andrena* of the western hemisphere, Part VIII. Subgenus *Thysandrena*, *Dasyandrena*, *Psammandrena*, *Rhacandrena*, *Euandrena*, and *Oxyandrena*. *Trans. Am. Entomol. Soc.* 103:1–143
LaBerge WE. 1985. A revision of the bees of the genus *Andrena* of the Western Hemisphere. Part XI. Minor subgenera and subgeneric key. *Trans. Am. Entomol. Soc.* 111(4):441–567
LaBerge WE. 1986. A revision of the bees of the genus *Andrena* of the Western Hemisphere. Part XII. Subgenera *Leucandrena*, *Ptilandrena*, *Scoliandrena* and *Melandrena*. *Trans. Am. Entomol. Soc.* 112(3):191–248
LaBerge WE. 1987. A revision of the bees of the genus *Andrena* of the western hemisphere, Part XII. Subgenera *Leucandrena*, *Ptilandrena*, *Scoliandrena*, and *Melandrena*. *Trans. Am. Entomol. Soc.* 112:191–248
LaBerge WE, Bouseman JK. 1970. A revision of the bees of the genus *Andrena* of the Western Hemisphere. Part III. *Tylandrena*. *Trans. Am. Entomol. Soc.* 96(4):543–605
LaBerge WE, Ribble DW. 1975. A revision of the bees of the genus *Andrena* of the western hemisphere. Part VII. Subgenus *Euandrena*. *Trans. Am. Entomol. Soc.* 101(3):371–446
Linsley EG. 1939. A revision of the Nearctic Melectinae. *Ann. Entomol. Soc. Am.* 32:429–68
Linsley EG. 1941. A revision of the genus *Oreopasites*. *Trans. Am. Entomol. Soc.* 66:307–18
Linsley EG. 1943a. A revision of the genus *Neopasites*. *Trans. Am. Entomol. Soc.* 69:119–40
Linsley EG. 1943b. Revisions of the genera *Townsendiella*, *Triopasites* and *Paranomada* (Hymenoptera: Nomadidae). *Trans. Am. Entomol. Soc.* 69:93–106
Linsley EG. 1945. A new species of *Paranomada* with notes on *Melecta thoracica* Cresson. *Entomol. News*. 56:150–53
McGinley RJ. 1986. Studies of Halictinae (Apoidea: Halictidae). I. Revision of New World *Lasioglossum* Curtis. *Smithson. Contrib. to Zool.* 429:1–294
Michener CD. 1938. American bees of the genus *Heriades*. *Ann. Entomol. Soc. Am.* 31:514–31
Michener CD. 1939a. A revision of the genus *Neolarra*. *Trans. Am. Entomol. Soc.* 65:347–62
Michener CD. 1939b. A revision of the genus *Ashmeadiella*. *Am. Midl. Nat.* 22:1–84
Michener CD. 1942. North American bees of the genus *Ancyloscelis*. *Pan-Pac. Entomol.* 18:108–13
Michener CD. 1943. The American bees of the genus *Anthocopa* with notes on Old World subgenera. *Ann. Entomol. Soc. Am.* 36:49–86
Michener CD. 1947. A revision of the American species of *Hoplitis* (Hymenoptera, Megachilidae). *Bull. Am. Museum Nat. Hist.* 89:1–59
Michener CD. 1954. Records and descriptions of North American megachilid bees. *J. Kansas Entomol. Soc.* 27:81–87
Mitchell TB. 1935. A revision of the genus *Megachile* in the Nearctic region. Part II. Morphology of the male sternites and genital armature and the taxonomy of the subgenera

Litomegachile, *Neomegachile* and *Cressoniella* (Hymenoptera: Megachilidae). *Trans. Am. Entomol. Soc.* 61(November):1–44
Mitchell TB. 1936. A revision of the genus *Megachile* in the Nearctic region. Part V. Taxonomy of subgenus *Xeromegachile* (Hymenoptera: Megachilidae). *Trans. Am. Entomol. Soc.* 62:323–82
Mitchell TB. 1937a. A revision of the genus *Megachile* in the Nearctic region. Part VIII. Taxonomy of the subgenus *Chelostomoides*, addenda and index (Hymenoptera: Megachilidae). *Trans. Am. Entomol. Soc.* 63:381–421
Mitchell TB. 1937b. A revision of the genus *Megachile* in the Nearctic region. Part VII. Taxonomy of the subgenus *Sayapis* (Hymenoptera: Megachilidae). *Trans. Am. Entomol. Soc.* 63:175–206
Mitchell TB. 1973. *A Subgeneric Revision of the Bees of the Genus Coelioxys of the Western Hemisphere*. Raleigh, NC: Department of Entomology, North Carolina State University
Onuferko TM. 2018. A revision of the cleptoparasitic bee genus *Epeolus* Latreille for Nearctic species, north of Mexico (Hymenoptera, Apidae). *Zookeys*. 755:1–185
Ordway E. 1966. Systematics of the genus *Augochlorella* (Hymenoptera, Halictidae) north of Mexico. *Univ. Kansas Sci. Bull.* 46:509–624
Orr MC, Pitts JP, Griswold T. 2018. Revision of the bee group Anthophora (Micranthophora) (Hymenoptera: Apidae), with notes on potential conservation concerns and a molecular phylogeny of the genus. *Zootaxa*. 4511(1):1–193
Parker FD, Bohart GE. 1979. *Dolichostelis*, a new genus of parasitic bees (Hymenoptera: Megachilidae). *J. Kansas Entomol. Soc.* 52(1):138–53
Portman ZM, Neff JL, Griswold T. 2016. Taxonomic revision of *Perdita* subgenus *Heteroperdita* Timberlake (Hymenoptera: Andrenidae), with descriptions of two ant-like males. *Zootaxa*. 4214(1):1–97
Ribble DW. 1965. A revision of the banded subgenera of *Nomia* in America (Hymenoptera, Halictidae). *Univ. Kansas Sci. Bull.* 45:277–357
Ribble DW. 1968. Revisions of two subgenera of *Andrena*: *Micrandrena* Ashmead and *Derandrena*, new subgenus. *Bull. Univ. Nebraska State Museum*. 8:237–394
Rightmyer MG. 2008. A review of the cleptoparasitic bee genus *Triepeolus* (Hymenoptera: Apidae). Part I. *Zootaxa*. 1710:1–170
Rightmyer MG, Griswold T, Arduser MS. 2010. A review of the non-metallic *Osmia* (*Melanosmia*) found in North America, with additional notes on palearctic *Melanosmia* (Hymenoptera, Megachilidae). *Zookeys*. 60:37–77
Roberts RB. 1972. Revision of the bee genus *Agapostemon*. *Univ. Kansas Sci. Bull.* 49:437–590
Rozen Jr. JG. 1958. Monographic study of the genus *Nomadopsis* Ashmead (Hymenoptera: Andrenidae). *Univ. Calif. Publ. Entomol.* 15:1–202
Rozen Jr. JG. 1992. Systematics and host relationships of the cuckoo bee genus *Oreopasites* (Hymenoptera: Anthophoridae: Nomadinae). *Am. Museum Novit.* 2605:1–58
Rozen Jr. JG. 1994. Biology and immature stages of some cuckoo bees belonging to Brachynomadini, with descriptions of two new species (Hymenoptera: Apidae: Nomadinae). *Am. Museum Novit.* 3089:1–31
Rozen Jr. JG. 1997. New taxa of Brachynomadine bees (Apidae: Nomadinae). *Am. Museum Novit.* 3200:1–26

Sandhouse GA. 1924. New North American species of bees belonging to the genus *Halictus* (*Chloralictus*). *Proc. United States Natl. Museum*. 65(19):1–43
Schwarz HF. 1926. North American *Dianthidium*, *Anthidiellum*, and *Paranthidium*. *Am. Museum Novit.* 226:1–25
Shanks SS. 1978. A revision of the cleptoparasitic bee genus *Neolarra*. *Wasmann J. Biol.* 35:212–46
Shinn AF. 1967. A revision of the bee genus *Calliopsis* and the biology and ecology of *C. andreniformis* (Hymenoptera, Andrenidae). *Univ. Kansas Sci. Bull.* 46(21):753–936
Silveira FA. 1995. Phylogenetic relationships and classification of Exomalopsini with a new tribe Teratognathini. *Univ. Kansas Sci. Bull.* 55:425–54
Snelling RR. 1966a. Studies on North American bees of the genus *Hylaeus*. 3. The Nearctic subgenera (Hymenoptera: Colletidae). *Bull. South. Calif. Acad. Sci.* 65(3):164–175
Snelling RR. 1966b. Studies on North American bees of the genus *Hylaeus* 1. Distribution of the western species of the subgenus *Prosopis* with descriptions of new forms (Hymenoptera: Colletidae). *Contrib. Sci. Nat. Hist. Museum Los Angeles Cty.* (98):1–18
Snelling RR. 1974. Notes on the distribution and taxonomy of some North American *Centris* (Hymenoptera: Anthophoridae). *Contrib. Sci. Nat. Hist. Museum Los Angeles Cty.* 1–41
Snelling RR. 1984. Studies on the taxonomy and distribution of American centridine bees (Hymenoptera: Anthophoridae). *Contrib. Sci. Nat. Hist. Museum Los Angeles Cty.* 347:1–69
Snelling RR. 1990. A review of the native North American bees of the genus *Chalicodoma*. *Contrib. Sci. Nat. Hist. Museum Los Angeles Cty.* 421:1–39
Snelling RR, Danforth BN. 1992. A review of *Perdita*, subgenus *Macrotera* (Hymenoptera: Andrenidae). *Contrib. Sci. Nat. Hist. Museum Los Angeles Cty.* 436:1–12
Snelling RR, Rozen Jr. JG. 1987. Contributions toward a revision of the New World nomadine bees, 2. The genus Melanomada. *Contrib. Sci. Nat. Hist. Museum Los Angeles Cty.* 384:1–12
Stage GI. 1966. *Biology and Systematics of the American Species of the Genus* Hesperapis *Cockerell*. University of California, Berkeley
Stephen WP. 1954. A revision of the bee genus *Colletes* in America North of Mexico (Hymenoptera, Colletidae). *Univ. Kansas Sci. Bull.* 36(6):149–527
Thorp RW. 1969. Systematics and ecology of bees of the subgenus *Diandrena* (Hymenoptera: Andrenidae). *Univ. Calif. Publ. Entomol.* 52:1–146
Timberlake PH. 1954. A revisional study of the bees of the genus *Perdita* F. Smith: with special reference to the fauna of the Pacific coast (Hymenoptera, Apoidea), Part I. *Univ. Calif. Publ. Entomol.* (9):345–432
Timberlake PH. 1956. A revisional study of the bees of the genus *Perdita* F. Smith: with special reference to the fauna of the Pacific coast (Hymenoptera, Apoidea), Part II. *Univ. Calif. Publ. Entomol.* 11:247–350
Timberlake PH. 1958. A revisional study of the bees of the genus *Perdita* F. Smith: with special reference to the fauna of the Pacific coast (Hymenoptera, Apoidea), Part III. *Univ. Calif. Publ. Entomol.* 14(3030–410):
Timberlake PH. 1960. A revisional study of the bees of the genus *Perdita* F. Smith: with special reference to the fauna of the Pacific coast (Hymenoptera, Apoidea), Part IV. *Univ. Calif. Publ. Entomol.* 17:1–156
Timberlake PH. 1961. A review of the genus *Conanthalictus*. *Pan-Pac. Entomol.* 37:145–60

Timberlake PH. 1962. A revisional study of the bees of the genus *Perdita* F. Smith: with special reference to the fauna of the Pacific coast (Hymenoptera, Apoidea), Part V. *Univ. Calif. Publ. Entomol.* 28:1–124

Timberlake PH. 1964a. A revisional study of the bees of the genus *Perdita* F. Smith: with special reference to the fauna of the Pacific coast (Hymenoptera, Apoidea), Part VI. *Univ. Calif. Publ. Entomol.* 28:125–388

Timberlake PH. 1964b. Some new species of *Pseudopanurgus* of the subgenus *Heterosarus* Robertson (Hymenoptera, Apoidea). *Am. Museum Novit.* 2185(2):1–26

Timberlake PH. 1967. New species of *Pseudopanurgus* from Arizona (Hymenoptera, Apoidea). *Am. Museum Novit.* (2298):1–23

Timberlake PH. 1968. A revisional study of the bees of the genus *Perdita* F. Smith, with special reference to the fauna of the Pacific coast, Part VII (including index to parts I to VII). *Univ. Calif. Publ. Entomol.* 49:1–196

Timberlake PH. 1969. A contribution to the systematics of North American species of *Synhalonia*. *Univ. Calif. Publ. Entomol.* 57:1–76

Timberlake PH. 1971. Supplementary studies on the systematics of the genus *Perdita*. *Univ. Calif. Publ. Entomol.* 66:1–63

Timberlake PH. 1973. Revision of the genus *Pseudopanurgus* of North America. *Univ. Calif. Publ. Entomol.* 72:1–58

Timberlake PH. 1975. The North American species of *Heterosarus* Robertson. *Univ. Calif. Publ. Entomol.* 77:1–56

Timberlake PH. 1976. Revision of the North American bees of the genus *Protandrena* Cockerell. *Trans. Am. Entomol. Soc.* 102:133–227

Timberlake PH. 1980a. Supplementary studies on the systematics of the genus *Perdita*, Part II. *Univ. Calif. Publ. Entomol.* 85:1–65

Timberlake PH. 1980b. Review of North American *Exomalopsis*, Parts I-IV. *Univ. Calif. Publ. Entomol.* 86:1–158

Vergara CH, Michener CD. 2004. A new species of *Caupolicana* s. str. from the Tehuacán-Cuicatlán Valley, Mexico, and a key to North American species of the subgenus (Hymenoptera: Colletidae). *J. Kansas Entomol. Soc.* 77(4):783–87

Vivallo F. 2019. Lectotype designations, taxonomic notes and new synonymies in some species of the bee genus *Centris* Fabricius, 1804 described by Amédée Lepeletier de Saint-Fargeau (Hymenoptera: Apidae). *Zootaxa*. 4624(1):23–40

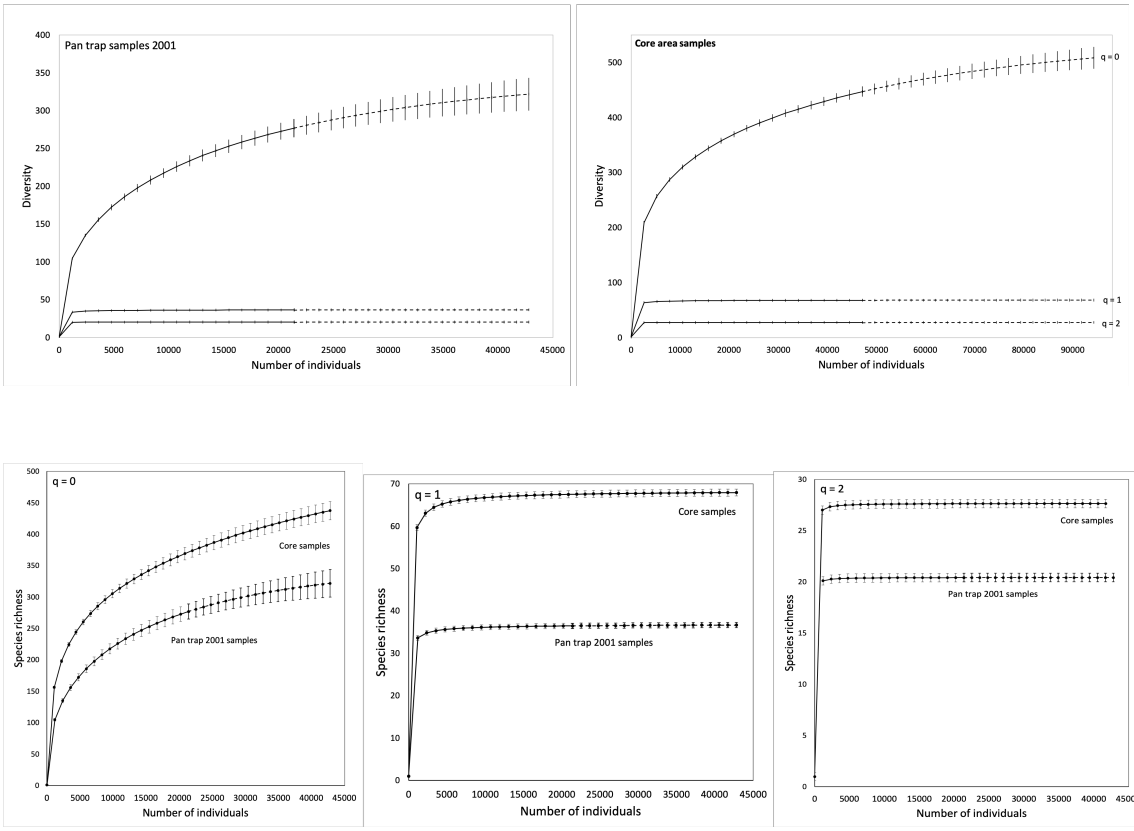
Vivallo F. 2020. Lectotype designations taxonomic notes and new synonymies in some species of the bee genus *Centris* Fabricius, 1804 described by Frederick Smith (Hymenoptera: Apidae). *Zootaxa*. 4729:151–76

Zavortink TJ. 1974. A revision of the genus *Ancylandrena* (Hymenoptera: Andrenidae). *Occas. Pap. Calif. Acad. Sci.* (109):1–36

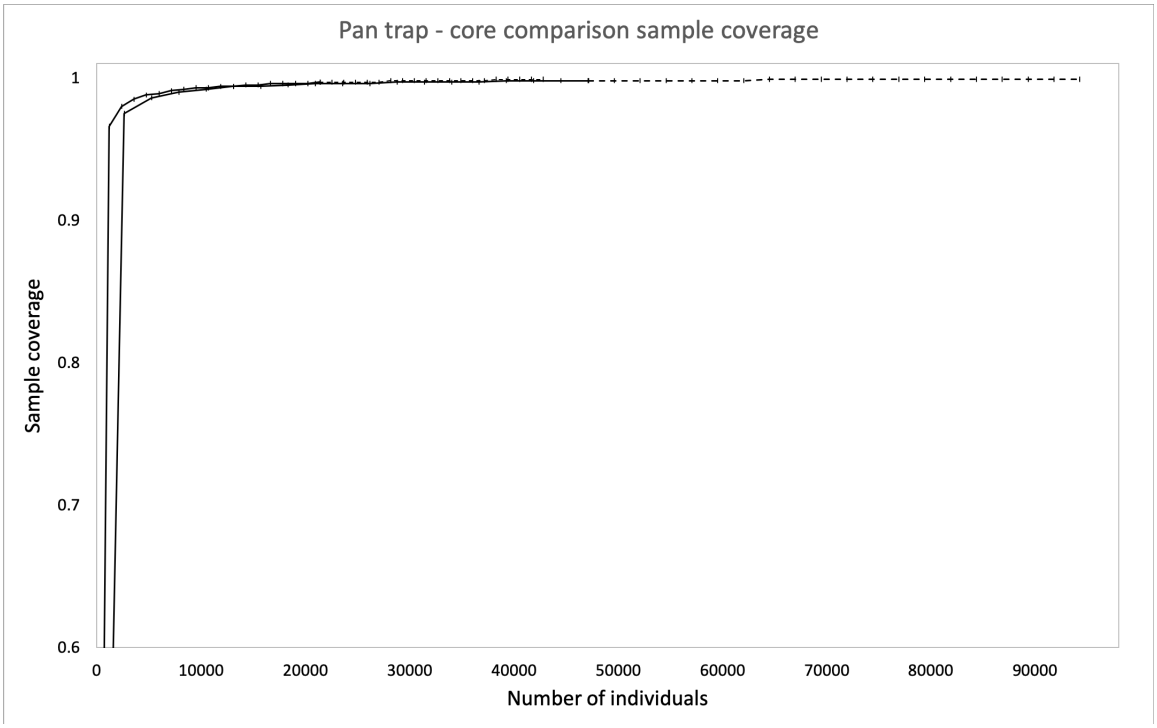
Zavortink TJ, LaBerge WE. 1976. Bees of the genus *Martinapis* Cockerell in North America. *Wasmann J. Biol.* 34(1):119–45

Supplementary Table 2. Table 4 from Meiners et al (2019) of bee species density for native bee inventories with at least 100 species in natural or semi-natural areas across the United States. Information here is updated for the San Bernardino Valley (this study).

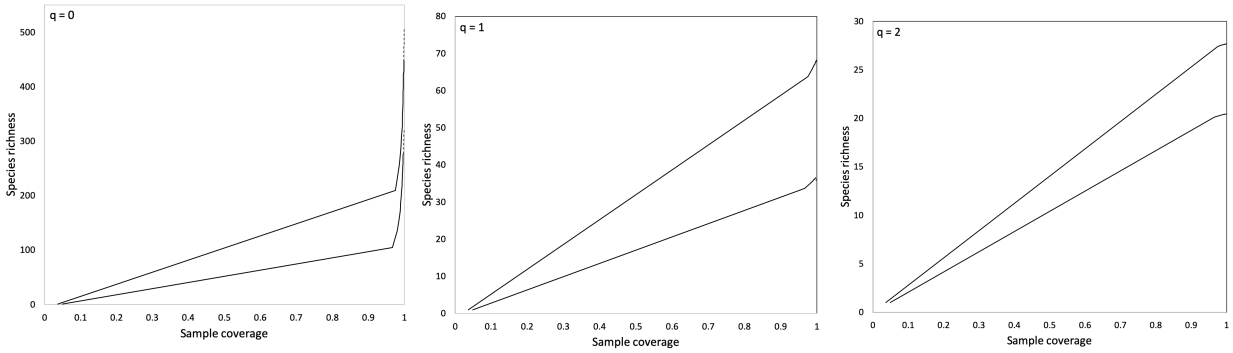
Study location	Study dates	Species	Approx. total area (km^2)	References
Grand Staircase Escalante National Monument, Utah	2000-2003	656	7,610	(Carril et al. 2018)
Clark County, Nevada	1998; 2005, 2006	598	20,487	(Griswold et al. 1999)
Yosemite National Park, California	2006-2009	554	3,028	pers. comm. T. Griswold in Meiners et al (2019)
Pinnacles National Park, California	1996-1999, 2002, 2011-2012	450	109	(Meiners et al. 2019)
San Bernardino Valley, Arizona/ Sonora	2000-2008	473	16	This study
Carlsbad Caverns National Park, New Mexico	2010-2011	364	189	pers. comm. T. Griswold in Meiners et al (2019)
Curlew Valley, Idaho	1969-1974	340	4,999	(Bohart & Knowlton 1973)
San Rafael Desert, Utah	1979-1992	333	5,180	(Griswold et al. 1998)
Mojave National Preserve California	1975-1995	305	6,475	pers. comm. T. Griswold in Meiners et al (2019)
Black Hills of South Dakota and Wyoming	2010-2011	290	12,950	(Drons 2012)
Carlinville, Illinois	1884-1916	288	256	(Minckley 2008)
MPG Ranch, Montana	2013-2015	229	39	(Kuhlman & Burrows 2017)
Indiana Dunes, Indiana	2003, 2004, 2010	204	60	(Grundel et al. 2011)
Albany County, Wyoming	1995-1996	200	11,160	(Tepedino & Stanton 1981)
Palouse Prairie, Idaho	2012-2013	174	2,122	(Rhoades et al. 2017)
Dugway Proving Ground, Utah	2003, 2005	163	3,243	(Wilson et al. 2009)
Channel Islands, California	Not specified	154	904	(Rust et al. 1985)
Black Rock Forest Reserve, New York	2003	144	15.5	(Giles & Ascher 2006)
Tonasket Ranger District, Washington	2004	140	1,678	(Wilson et al. 2010)
Black Belt Prairie, Mississippi	1991-2001	118	803	(Smith et al. 2012)
Archibold Biological Station, Florida		113	21	(Deyrup et al. 2002)
Hattiesburg, Mississippi	1943-1944	104	140	(Michener 1947)



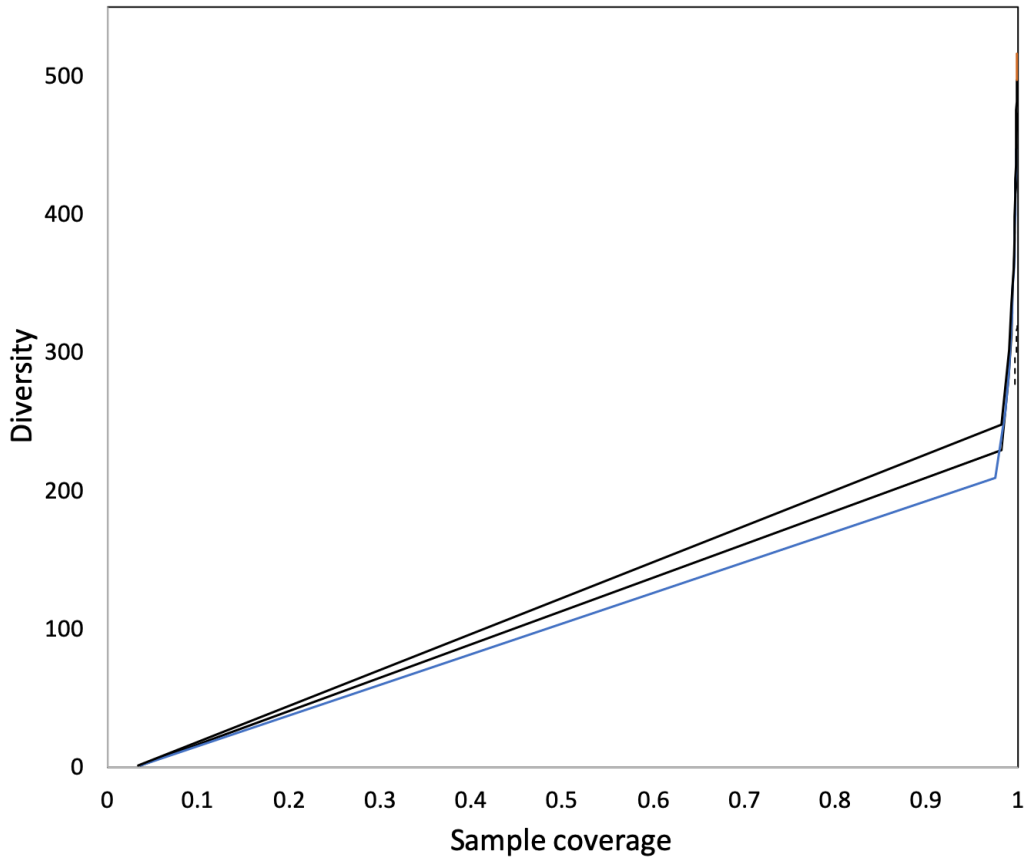
Supplemental Figure 1. Comparison of sample-sized-based rarefaction (solid lines) and extrapolation (dashed line) from the pan trap samples at permanent sites in 2001 and the samples made by netting and pan traps throughout the same area encompassed by the permanent sites over 9 years (the "core" area) following the approach of Chao et al (*34*). Bee species richness at the base sample size of 42,798 individuals (i.e., double the smaller reference size) is 406.0 for samples from the core area and 321.8 from the 2001 pan traps. The two top graphs are sample-size-based rarefaction and extrapolation curves for the pan trap samples from 2001 and the samples made in the core area from 2000-2008. The bottom three graphs are comparisons of samples from the pan trap samples from 2001 and the core area for each order of q. Although bees were sampled from the same area, differences in sampling and years sampled gave different species richness estimates for each order of q. The first graph in lower row is the same as Fig. 1 in the paper and presented here for completeness.



Supplemental Figure 2. Plot of sample coverage for rarified samples (solid line) and extrapolated samples (dashed line) as a function of sample size for the pan trap samples at permanent sites in 2001 and the samples made by netting and pan traps throughout the same area encompassed by the permanent sites over 9 years (the “core” area). 95% confidence intervals calculated from 50 bootstrap replications are not prominent because of their small size. Both samples have greater that 95% coverage and broadly overlap up to their reference sizes (21, 403 individuals for 2001 pan trap samples, 47,120 for core area samples) and when extrapolated to twice the reference sample size.



Supplemental Figure 3. Comparison of the coverage-based rarefaction (solid line) and extrapolation (dashed line), for the pan trap samples at permanent sites in 2001 and the samples made by netting and pan traps throughout the same area encompassed by the permanent sites over 9 years (the "core" area) for all three orders of q. In each of the three graphs the lower line is the 2001 pan trap samples and the upper line is the samples from the core area. Note that the lines do not intersect at any sample coverage.



Supplemental Figure 4. Comparison of the coverage-based rarefaction (solid line) and extrapolation (dashed line), for the samples made in the core area (middle line), core area combined with the pan trap sampling at permanent sites (blue line on bottom), and all samples made in the San Bernardino Valley (top line) at q =0. The confidence intervals are very small they do not show on the graph. Sample coverage is above 95% for diversity values below 200 species for the datasets and the extrapolations overlap broadly at higher sampling coverage indicating all three datasets predict very similar bee species richness in the San Bernardino Valley. Note that the analyses at other orders of q are not shown because the results match that shown here.