

Digital supplementary material to

CERDÁ, X., ARNAN, X. & RETANA, J. 2013: Is competition a significant hallmark of ant (Hymenoptera: Formicidae) ecology? – Myrmecological News 18: 131-147.

Tab. S1: Structural features of ant communities from different biogeographical areas. ^a All sites were sampled with pitfall traps or counting ants in quadrats except: # count of the number of nests, * baits. ^b Dominant taxa include species of *Iridomyrmex*, *Formica* (*rufa*, *exsecta*, *microgyna* groups), *Oecophylla*, *Azteca*, *Pseudomyrmex*, army ants (*Eciton*, *Labidus*, *Dorylus* or *Aenictus*), leaf-cutting ants (*Atta*, *Acromyrmex* and other Attini), and tramp species such as *Linepithema humile* or *Solenopsis invicta*.

	SITES ^a	N of species	% Dominant species ^b	% Abundance of dominant species ^b	% Abundance of two most common species	Reference
COLD-TEMPERATE FORESTS						
1	Young taiga clearcut (Finland)	18	28	62	65	PUNTTILA & al. (1996)
2	Old taiga clearcut (Finland)	19	26	67	77	PUNTTILA & al. (1996)
3	Mature taiga forest (Finland)	8	13	94	97	SAVOLAINEN & VEPSÄLÄINEN (1989)
4	Spruce forest (Switzerland)	5	20	94	98	CHERIX & BOURNE (1980)
5	Mixed-hardwood forest (USA) #	13	0	0	68	HERBERS (1989)
6	Mixed-hardwood forest (USA) #	8	0	0	80	HERBERS (1989)
7	Tall open forest (Australia)	18	11	17	62	ANDERSEN (1986a)
8	Tall open forest (Australia)	18	11	8	68	ANDERSEN (1986a)
9	Closed forest (Australia)	10	10	2	67	ANDERSEN (1986a)
TEMPERATE FORESTS AND WOODLANDS						
10	Hardwood forest (USA)	16	0	0	48	LYNCH & al. (1988)
11	Open oak-juniper woodland (USA)	24	0	0	41	ANDERSEN (1997)
12	Oak-juniper woodland (USA)	30	3	6	26	ANDERSEN (1997)
13	Pine-oak woodland (USA)	22	0	0	25	ANDERSEN (1997)
14	Eucalyptus woodland (Australia)	47	18	2	48	ANDERSEN (1986b)
15	Heathland (Australia)	22	19	18	36	ANDERSEN (1986b)
16	Poplar forest [APo1] (Hungary)	10	10	0.14	89	ALVARADO & GALLÉ (2000)
17	Poplar forest [APo2] (Hungary)	12	8	0.15	87	ALVARADO & GALLÉ (2000)
18	Poplar forest [BuPo3] (Hungary)	18	17	15	78	ALVARADO & GALLÉ (2000)
19	Oak forest [AOa2] (Hungary)	10	10	2	79	ALVARADO & GALLÉ (2000)
20	Oak forest [BuOa3] (Hungary)	11	18	2	78	ALVARADO & GALLÉ (2000)
21	Juniper woodland [BuJu1] (Hungary)	12	0	0	70	ALVARADO & GALLÉ (2000)
22	Juniper woodland [BoJu2] (Hungary)	11	0	0	71	ALVARADO & GALLÉ (2000)
23	Juniper woodland [BoJu3] (Hungary)	12	0	0	46	ALVARADO & GALLÉ (2000)
24	Old pine forest (40 y) (Hungary)	15	20	78	78	ALVARADO & GALLÉ (2000)
25	Young pine forest (Hungary)	13	15	59	77	ALVARADO & GALLÉ (2000)
26	Open grassland (Poland) #	5	0	0	76	GALLÉ & al. (1998)
27	Shrubland (Poland) #	6	0	0	57	GALLÉ & al. (1998)
28	Pine forest [plot 8] (Poland) #	5	0	0	55	GALLÉ & al. (1998)

29	Pine forest [plot 9] (Poland) #	6	17	< 0.01	79	GALLÉ & al. (1998)
30	Open grassland (Hungary)	6	17	< 0.01	73	JÁRDÁN & al. (1993)
31	Closed grassland (Hungary)	10	10	3	93	JÁRDÁN & al. (1993)
32	Shrubland (Hungary)	10	10	35	90	JÁRDÁN & al. (1993)
33	Closed poplar forest (Hungary)	12	17	66	69	JÁRDÁN & al. (1993)
MEDITERRANEAN AREAS						
34	Open grassland (Spain)	12	0	0	66	CERDÁ & al. (1997)
35	Open grassland (Spain)	13	0	0	58	CERDÁ & al. (1998)
36	Shrubland (Spain) #	22	0	0	48	JIMÉNEZ-ROJAS & TINAUT (1992)
37	Aleppo pine forest (Spain)	15	0	0	88	CERDÁ & al. (1997)
38	Aleppo pine forest (Spain) #	13	0	0	48	JIMÉNEZ-ROJAS & TINAUT (1992)
39	Holm oak forest (Spain)	15	0	0	84	CERDÁ & al. (1997)
40	Oak forest (Portugal) *	26	0	0	66	CAMMELL & al. (1996)
41	Pine forest (Portugal) *	23	0	0	58	CAMMELL & al. (1996)
42	Eucalyptus forest (Portugal) *	34	0	0	41	CAMMELL & al. (1996)
43	"Dehesa" pastureland (Spain) #	20	0	0	54	REYES-LÓPEZ & al. (2003)
44	Dry grassland (Italy)	8	0	0	74	CASTRACANI & al. (2010)
45	Wet grassland (Italy)	13	0	0	67	CASTRACANI & al. (2010)
46	Pine forest (Italy)	13	0	0	82	CASTRACANI & al. (2010)
47	Mixed oak forest (Italy)	14	0	0	61	CASTRACANI & al. (2010)
48	Mediterranean scrubland (Italy)	9	0	0	43	CASTRACANI & al. (2010)
ARID AND SEMI-ARID ZONES AND DESERTS						
49	Desert scrub (USA)	17	12	37	42	ANDERSEN (1997)
50	Desert scrub (USA)	24	8	23	26	ANDERSEN (1997)
51	Desert scrub (USA)	26	12	23	32	ANDERSEN (1997)
52	Open shrubland (Australia)	32	25	60	46	ANDERSEN (1993)
53	Mixed grassland (Australia)	39	10	33	42	ANDERSEN (1993)
54	Namib desert (South Africa)	13	0	0	62	MARSH (1985)
55	Forest steppe [transect 1] (Iran)	15	0	0	37	PAKNIA & PFEIFFER (2011)
56	Forest steppe [transect 2] (Iran)	15	0	0	44	PAKNIA & PFEIFFER (2011)
57	Forest steppe [transect 5] (Iran)	7	0	0	52	PAKNIA & PFEIFFER (2011)
58	Forest steppe [transect 6] (Iran)	14	0	0	38	PAKNIA & PFEIFFER (2011)
59	Central Persian desert [transect 3] (Iran)	12	0	0	33	PAKNIA & PFEIFFER (2011)
60	Central Persian desert [transect 4] (Iran)	11	0	0	43	PAKNIA & PFEIFFER (2011)
61	South Nubo-Sindian desert [transect 7] (Iran)	15	0	0	41	PAKNIA & PFEIFFER (2011)
62	South Nubo-Sindian desert [transect 8] (Iran)	14	0	0	45	PAKNIA & PFEIFFER (2011)
63	Semi-arid grassland (South-Africa)	26	0	0	28	LINDSEY & SKINNER (2001)
TROPICAL AND SUBTROPICAL WOODLANDS						
64	Fynbos shrubland (South Africa)	45	7	43	53	DONNELLY & GILIOMEE (1985)
65	Savanna woodland (Australia)	74	8	43	49	ANDERSEN & PATEL (1994)

66	Savanna woodland (Australia)	145	12	33	24	ANDERSEN (1992)
67	Savanna woodland (Australia)	58	5	7	18	VAN INGEN & al. (2008)
68	Cerrado grassland (Brazil)	48	25	18	27	FOWLER & al. (1990)
69	Open forest (Australia)	63	8	23	21	ANDERSEN (1992)
70	Tropical dry forest (Mexico)	46	17	13	15	GOVE & al. (2005)
71	Tropical dry secondary forest (Mexico)	37	8	8	14	GOVE & al. (2005)
72	Tropical dry forest [transect 1] (Paraguay)	55	5	2	22	DELSINNE (2007)
73	Tropical dry forest [transect 1] (Paraguay)	68	7	4	14	DELSINNE (2007)
74	Tropical dry shrubland (Paraguay)	48	4	5	19	DELSINNE (2007)
TROPICAL RAIN FORESTS						
75	Monsoon vine forest (Australia)	47	6	5	33	ANDERSEN & REICHEL (1994)
76	Vine forest of cloudy wet uplands (Australia)	17	12	18	56	VAN INGEN & al. (2008)
77	Primary rain forest (Mexico)	40	10	19	17	MACKAY & al. (1991)
78	Primary wet forest (Costa Rica) *	68	2	2	10	ROTH & al. (1994)
79	Wet forest (Costa Rica) #	31	3	1	33	KASPAKI (1996)
80	Wet forest (Panama) #	26	0	0	33	KASPAKI (1996)
81	Lowland rainforest [IFR] (Guyana)	84	0	0	35	LAPOLLA & al. (2007)
82	Lowland rainforest [MHC] (Guyana)	62	0	0	52	LAPOLLA & al. (2007)
83	Cloud rainforest [MAU] (Guyana)	40	0	0	43	LAPOLLA & al. (2007)
84	Cloud rainforest [MAF] (Guyana)	42	0	0	66	LAPOLLA & al. (2007)

References

- ALVARADO, M. & GALLÉ, L. 2000: Ant assemblages associated with lowland forests in the southern part of the great Hungarian plain. – *Acta Zoologica Academiae Scientiarum Hungarica* 46: 79-102.
- ANDERSEN, A.N. 1986a: Patterns of ant community organization in mesic southeastern Australia. – *Australian Journal of Ecology* 11: 87-97.
- ANDERSEN, A.N. 1986b: Diversity, seasonality and community organization of ants at adjacent heath and woodland sites in South-Eastern Australia. – *Australian Journal of Zoology* 34: 53-64.
- ANDERSEN, A.N. 1992: Regulation of "momentary" diversity by dominant species in exceptionally rich ant communities of the Australian seasonal tropics. – *The American Naturalist* 140: 401-420.
- ANDERSEN, A.N. 1993: Ant communities in the Gulf region of Australia's semi-arid tropics: species composition, patterns of organisation, and biogeography. – *Australian Journal of Zoology* 41: 399-414.
- ANDERSEN, A.N. 1997: Functional groups and patterns of organization in North American ant communities: a comparison with Australia. – *Journal of Biogeography* 24: 433-460.
- ANDERSEN, A.N. & PATEL, A.D. 1994: Meat ants as dominant members of Australian ant communities: an experimental test of their influence on the foraging success and forager abundance of other species. – *Oecologia* 98: 15-24.
- ANDERSEN, A.N. & REICHEL, H. 1994: The ant (Hymenoptera: Formicidae) fauna of Holmes Jungle, a rainforest patch in the seasonal tropics of Australia's Northern Territory. – *Journal of the Australian Entomological Society* 33: 153-158.
- CAMMELL, M.E., WAY, M.J. & PAIVA, M.R. 1996: Diversity and structure of ant communities associated with oak, pine, eucalyptus and arable habitats in Portugal. – *Insectes Sociaux* 43: 37-46.
- CASTRACANI, C., GRASSO, D.A., FANFANI, A. & MORI, A. 2010: The ant fauna of Castelporziano Presidential Reserve (Rome, Italy) as a model for the analysis of ant community structure in relation to environmental variation in Mediterranean ecosystems. – *Journal of Insect Conservation* 14: 585-594.
- CERDÁ, X., RETANA, J. & CROS, S. 1997: Thermal disruption of transitive hierarchies in Mediterranean ant communities. – *Journal of Animal Ecology* 66: 363-374.
- CERDÁ, X., RETANA, J. & MANZANEDA, A. 1998: The role of competition by dominants and temperature in the foraging of subordinate species in Mediterranean ant communities. – *Oecologia* 117: 404-412.
- CHERIX, D. & BOURNE, J.D. 1980: A field study on a super-colony of the red-wood ant *Formica lugubris* ZETT. in relation to other predatory arthropods (spiders, harvestmen and ants). – *Revue Suisse de Zoologie* 87: 955-973.

- DELSINNE, T. 2007: Structure des assemblages de fourmis le long d'un gradient d'aridité situé dans le Chaco sec paraguayen. – PhD thesis, Université Libre de Bruxelles, Bruxelles, 242 pp.
- DONNELLY, D. & GILIOREE, J.H. 1985: Community structure of epigaeic ants (Hymenoptera: Formicidae) in fynbos vegetation in the Jonkershoek Valley. – Journal of the Entomological Society of Southern Africa 48: 247-257.
- FOWLER, H.G., BERNARDI, J.V.E. & DI ROMAGNANO, L.F.T. 1990: Community structure and *Solenopsis invicta* in São Paulo. In: VANDER MEER, R.K., JAFFÉ, K. & CEDENO, A. (Eds.): Applied myrmecology. A world perspective. – Westview Press, Boulder, CO, USA, pp. 199-207.
- GALLÉ, L., KÖRMÖCZI, L., HORNUNG, E. & KEREKES, J. 1998: Structure of ant assemblages in a Middle-European successional sand dune area. – Tisia 31: 19-28.
- GOVE, A.D., MAJER, J.D. & RICO-GRAY, V. 2005: Methods for conservation outside of formal reserve systems: the case of ants in the seasonally dry tropics of Veracruz, Mexico. – Biological Conservation 126: 328-338.
- HERBERS, J.M. 1989: Community structure in north temperate ants: temporal and spatial variation. – Oecologia 81: 201-211.
- JÁRDÁN, C., GALLÉ, L. & MARGÓCZI, K. 1993: Ant assemblage composition in a successional Hungarian sand dune area. – Tisia 27: 9-15.
- JIMÉNEZ-ROJAS, J. & TINAUT, A. 1992: Mirmecofauna de la Sierra de Loja (Granada) (Hymenoptera: Formicidae). – Orsis 7: 97-111.
- KASPARI, M. 1996: Litter ant patchiness at the 1-m² scale: disturbance dynamics in three Neotropical forests. – Oecologia 107: 265-273.
- LAPOLLA, J.S., SUMAN, T., SOSA-CALVO, J. & SCHULTZ, T.R. 2007: Leaf litter ant diversity in Guyana. – Biodiversity and Conservation 16: 491-510.
- LINDSEY, P.A. & SKINNER, J.D. 2001: Ant composition and activity patterns as determined by pitfall trapping and other methods in three habitats in the semi-arid Karoo. – Journal of Arid Environment 48: 551-568.
- LYNCH, J.F., JOHNSON, A.K. & BALINSKY, E.C. 1988: Spatial and temporal variation in the abundance and diversity of ants (Hymenoptera: Formicidae) in the soil and litter layers of a Maryland forest. – The American Midland Naturalist 119: 31-44.
- MACKAY, W.P., REBELES, A., ARREDONDO, H.C., RODRÍGUEZ, A.D., GONZÁLEZ, D.A. & VINSON, S.B. 1991: Impact of the slashing and burning of a tropical rain forest on the native ant fauna (Hymenoptera: Formicidae). – Sociobiology 18: 257-268.
- MARSH, A.C. 1985: Forager abundance and dietary relationships in a Namib Desert ant community. – Suid Afrikaanse Tydskrif vir Dierkunde 20: 197-203.
- PAKNIA, O. & PFEIFFER, M. 2011: Steppe versus desert: multi-scale patterns in diversity of ant communities in Iran. – Insect Conservation and Diversity 4: 297-306.
- PUNTTILA, P., HAILA, Y. & TUKIA, H. 1996: Ant communities in taiga clearcuts: habitat effects and species interactions. – Ecography 19: 16-28.
- REYES-LÓPEZ, J., RUIZ, N. & FERNÁNDEZ-HAEGER, J. 2003: Community structure of ground-ants: the role of single trees in a Mediterranean pastureland. – Acta Oecologica 24: 195-202.
- ROTH, D.S., PERFECTO, I. & RATHCKE, B. 1994: The effects of management systems on ground-foraging ant diversity in Costa Rica. – Ecological Applications 4: 423-436.
- SAVOLAINEN, R. & VEPSÄLÄINEN, K. 1989: Niche differentiation of ant species within territories of the wood ant *Formica polyctena*. – Oikos 56: 3-16.
- VAN INGEN, L., CAMPOS, R.I. & ANDERSEN, A.N. 2008: Ant community structure along an extended rain forest-savanna gradient in tropical Australia. – Journal of Tropical Ecology 24: 445-455.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Myrmecological News = Myrmecologische Nachrichten](#)

Jahr/Year: 2013

Band/Volume: [018](#)

Autor(en)/Author(s): Cerdá Xim, Arnan X., Retana Javier

Artikel/Article: [Digital supplementary material to CERDÁ, X., ARNAN, X. & RETANA, J. 2013: Is competition a significant hallmark of ant \(Hymenoptera: Formicidae\) ecology? - Myrmecological News 18: 131-147. 131-147](#)