

Table S1. List of selected species of the dataset, with their cumulative cover (obtained by summing the cover percentage of each species across the 108 sampled plots), relative growth rate data used for the estimation of the net primary production, and their reference (in case the data is referred to another similar species, the name is reported in brackets). Species nomenclature follows Bartolucci et al. (2018), while alien species classification follows Galasso et al. (2018).

	Species	Foredune	Dry grasslands	Humid grasslands	Relative growth rate (day ⁻¹)	Reference for relative growth rate data
	1 <i>Calamagrostis arenaria</i> ssp. <i>arundinacea</i>	265	0	0	0.14	Gratani et al. 2007
	2 <i>Fumana procumbens</i>	0	219.5	50.8	0.08	Verdú 2000 (<i>Cystus clusii</i>)
	3 <i>Elymus farctus</i>	138.02	23.9	1	0.03	Sykes and Wilson 1989
	4 <i>Poterium sanguisorba</i>	3	118.7	13	0.13	Grime and Hunt 1975
	5 <i>Cyperus capitatus</i>	0	112.4	0	0.14	Shiple and Keddy 1988
	6 <i>Cakile maritima</i> ssp. <i>maritima</i>	81.5	0	0	0.1	Gratani et al. 2007
	7 <i>Festuca fasciculata</i>	45.6	19.41	0	0.26	Maranon and Grubb 1993
	8 <i>Cynodon dactylon</i>	1.6	50.3	2	0.04	Sun 1992
	9 <i>Echinophora spinosa</i>	42.9	0	0	0.12	Gratani et al. 2007
	10 <i>Thymus pulegioides</i>	6	20	8	0.1	Grime and Hunt 1975
Native species	11 <i>Trachomitum venetum</i> ssp. <i>venetum</i>	17	1	0.2	0.16	Hunt and Cornelissen 1997; Xianzhao et al. 2013
	12 <i>Eryngium maritimum</i>	15	0	0	0.12	Gratani et al. 2007
	13 <i>Hypochaeris radicata</i>	3.5	9.8	0	0.21	Van de Dijk 1980
	14 <i>Silene vulgaris</i> ssp. <i>tenoreana</i>	0.5	5.1	1	0.23	Poorter 1989
	15 <i>Silene conica</i>	1.5	3.4	0	0.23	Poorter 1989
	16 <i>Pilosella piloselloides</i>	0	4.7	0	0.03	Pleijel and Danielsson 1997 (<i>Hieracium pilosella</i>)
	17 <i>Teucrium capitatum</i> ssp. <i>capitatum</i>	0	4	3	0.15	Grime and Hunt 1975
	18 <i>Scabiosa triandra</i>	0	3	1	0.18	Grime and Hunt 1975
	19 <i>Plantago lanceolata</i>	0	2	0	0.2	Grime and Hunt 1975
	20 <i>Phleum arenarium</i> ssp. <i>caesium</i>	0.6	1.22	0	0.23	Boorman 1982
	21 <i>Medicago marina</i>	0.4	0	0	0.2	Maranon and Grubb (1993)
	22 <i>Lagurus ovatus</i>	0	0.01	0	0.07	Sykes and Wilson 1989
	23 <i>Schoenus nigricans</i>	0	0	240	0.05	Lee et al. 1983
	24 <i>Erica carnea</i>	0	0	130	0.06	Cornelissen et al. 1996 (<i>Erica cinerea</i>)
	25 <i>Tripidium ravennae</i> ssp. <i>ravennae</i>	0	0	51	0.14	Gratani et al. 2007
	26 <i>Asparagus maritimus</i>	0	0	1	0.11	Sun and Frelich 2011
Alien species	27 <i>Ambrosia psilostachya</i>	119.4	159.8	1.1	0.12	Poorter 1993
	28 <i>Xanthium orientale</i>	69.2	0	0	0.13	Shiple and Keddy 1988
	29 <i>Oenothera stucchii</i>	19.72	15	0	0.18	Mihulka et al. 2006 (<i>Oenothera biennis</i>)
	30 <i>Cenchrus longispinus</i>	7.6	0	0	0.18	Gleeson and Tilman 1994
	31 <i>Erigeron canadensis</i>	0	4.44	1	0.11	Sun and Frelich 2011
	Cover sum total species	1160.06	1289.86	590.60		
	Cover sum measured species	838.04	777.68	504.10		
	Cover percentage of measured species	72.24	60.29	85.35		

References

- Bartolucci F, Peruzzi L, Galasso G, Albano A, Alessandrini A, Ardenghi NMG, Astuti G, Bacchetta G, Ballelli S, Banfi E, Barberis G, Bernardo L, Bouvet D, Bovio M, Cecchi L, Di Pietro R, Domina G, Fascetti S, Fenu G, Festi F, Foggi B, Gallo L, Gottschlich G, Gubellini L, Iamónico D, Iberite M, Jiménez-Mejías P, Lattanzi E, Marchetti D, Martinetto E, Masin RR, Medagli P, Passalacqua NG, Peccenini S, Pennesi R, Pierini B, Poldini L, Prosser F, Raimondo FM, Roma-Marzio F, Rosati L, Santangelo A, Scoppola A, Scortegagna S, Selvaggi A, Selvi F, Soldano A, Stinca A, Wagensommer RP, Wilhalm T, Conti F (2018) An updated checklist of the vascular flora native to Italy. *Plant Biosystems* 152: 179–303. <https://doi.org/10.1080/11263504.2017.1419996>
- Boorman LA (1982) Some Plant Growth Patterns in Relation to the Sand Dune Habitat. *The Journal of Ecology* 70: 607. <https://doi.org/10.2307/2259926>
- Cornelissen AJHC, Diez PC, Hunt R (1996) Seedling Growth, Allocation and Leaf Attributes in a Wide Range of Woody Plant Species and Types Published. *Journal of Ecology* 84: 755–765.
- Galasso G, Conti F, Peruzzi L, Ardenghi NMG, Banfi E, Celesti-Grapow L, Albano A, Alessandrini A, Bacchetta G, Ballelli S, Bandini Mazzanti M, Barberis G, Bernardo L, Blasi C, Bouvet D, Bovio M, Cecchi L, Del Guacchio E, Domina G, Fascetti S, Gallo L, Gubellini L, Guiggi A, Iamónico D, Iberite M, Jiménez-Mejías P, Lattanzi E, Marchetti D, Martinetto E, Masin RR, Medagli P, Passalacqua NG, Peccenini S, Pennesi R, Pierini B, Podda L, Poldini L, Prosser F, Raimondo FM, Roma-Marzio F, Rosati L, Santangelo A, Scoppola A, Scortegagna S, Selvaggi A, Selvi F, Soldano A, Stinca A, Wagensommer RP, Wilhalm T, Bartolucci F (2018) An updated checklist of the vascular flora alien to Italy. *Plant Biosystems* 152: 556–592. <https://doi.org/10.1080/11263504.2018.1441197>
- Gleeson SK, Tilman D (1994) Plant Allocation, Growth Rate and Successional Status. *Functional Ecology* 8: 543. <https://doi.org/10.2307/2390080>
- Gratani L, Crescente MF, Varone L (2007) Ecologia della duna: Ritmo fenologico delle specie psammofile. *Fitosociologia* 44: 11–16.
- Grime JP, Hunt R (1975) Relative Growth-Rate: Its Range and Adaptive Significance in a Local Flora. *The Journal of Ecology* 63: 393. <https://doi.org/10.2307/2258728>
- Hunt R, Cornelissen JHC (1997) Components of relative growth rate and their interrelations in 59 temperate plant species. *New Phytologist* 135: 395–417. <https://doi.org/10.1046/j.1469-8137.1997.00671.x>
- Lee WG, Mark AF, Wilson JB (1983) Ecotypic differentiation in the ultramafic flora of the south island, new Zealand. *New Zealand Journal of Botany* 21: 141–156.

<https://doi.org/10.1080/0028825X.1983.10428538>

- Maranon T, Grubb PJ (1993) Physiological Basis and Ecological Significance of the Seed Size and Relative Growth Rate Relationship in Mediterranean Annuals. *Functional Ecology* 7: 591. <https://doi.org/10.2307/2390136>
- Mihulka S, Pyšek P, Martinková J, Jarošík V (2006) Invasiveness of *Oenothera* congeners alien to Europe: Jack of all trades, master of invasion? *Perspectives in Plant Ecology, Evolution and Systematics* 8: 83–96. <https://doi.org/10.1016/j.ppees.2006.08.003>
- Pleijel H, Danielsson H (1997) Growth of 27 herbs and grasses in relation to ozone exposure and plant strategy. *New Phytologist* 135: 361–367. <https://doi.org/10.1046/j.1469-8137.1997.00648.x>
- Poorter H (1989) Plant growth analysis: towards a synthesis of the classical and the functional approach. *Physiologia Plantarum* 75: 237–244. <https://doi.org/10.1111/j.1399-3054.1989.tb06175.x>
- Poorter H (1993) Interspecific variation in the growth response of plants to an elevated ambient CO₂ concentration. *Vegetatio* 104–105: 77–97. <https://doi.org/10.1007/BF00048146>
- Shipley B, Keddy PA (1988) The Relationship Between Relative Growth Rate and Sensitivity to Nutrient Stress in Twenty-Eight Species of Emergent Macrophytes. *The Journal of Ecology* 76: 1101. <https://doi.org/10.2307/2260637>
- Sun D (1992) Trampling resistance, recovery and growth rate of eight plant species. *Agriculture, Ecosystems & Environment* 38: 265–273. [https://doi.org/10.1016/0167-8809\(92\)90150-A](https://doi.org/10.1016/0167-8809(92)90150-A)
- Sun S, Frelich LE (2011) Flowering phenology and height growth pattern are associated with maximum plant height, relative growth rate and stem tissue mass density in herbaceous grassland species. *Journal of Ecology* 99: 991–1000. <https://doi.org/10.1111/j.1365-2745.2011.01830.x>
- Sykes MT, Wilson JB (1989) The effect of salinity on the growth of some Zealand sand dune species. *Acta Botanica Neerlandica* 38: 173–182.
- Xianzhao L, Chunzhi W, Qing S (2013) Screening for salt tolerance in eight halophyte species from Yellow River Delta at the two initial growth stages. *ISRN Agronomy* 2013: 1–8. <https://doi.org/10.1155/2013/592820>
- Van de Dijk SJ (1980) Two ecologically distinct subspecies of *Hypochaeris radicata* L. II. Growth response to nitrate and ammonium, growth strategy and formative aspects. *Plant and Soil* 57: 111–122. Available from: <https://www.jstor.org/stable/42948390>.
- Verdú M (2000) Ecological and evolutionary differences between Mediterranean seeders and resprouters. *Journal of Vegetation Science* 11: 265–268. <https://doi.org/10.2307/3236806>