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Supplement of

Sampling fossil floras for the study of insect herbivory: how many leaves is enough?

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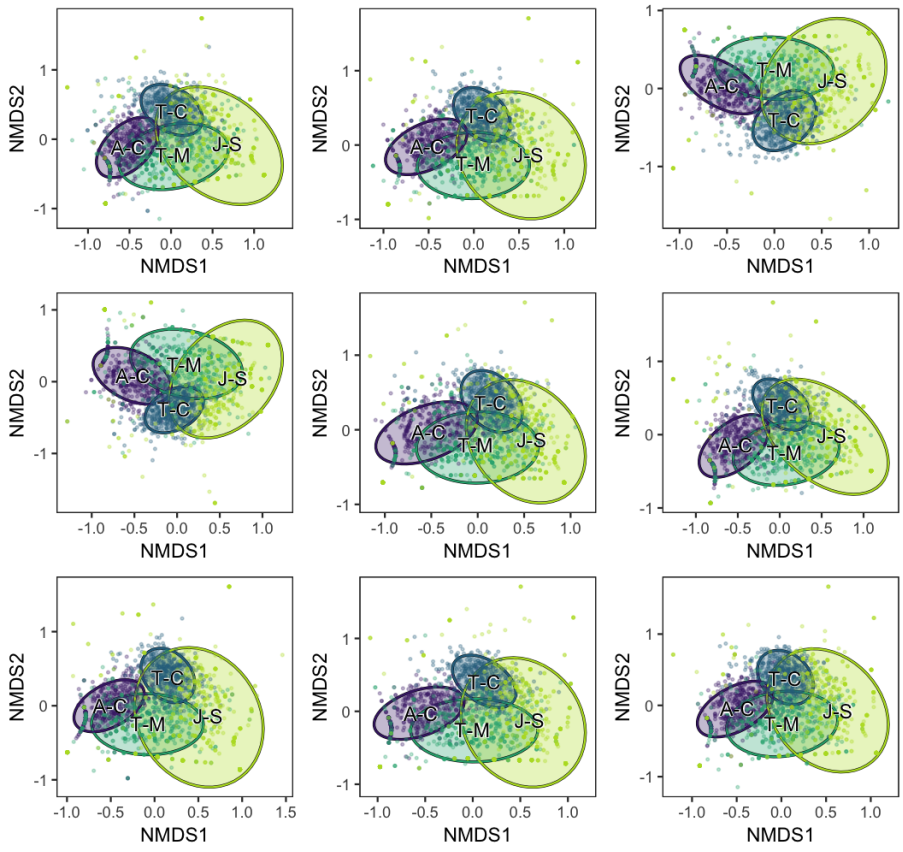

Figure S1. NMDS plot of plant hosts subsampled to 250 cm^2 of leaf surface area, calculated from presence/absence data. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

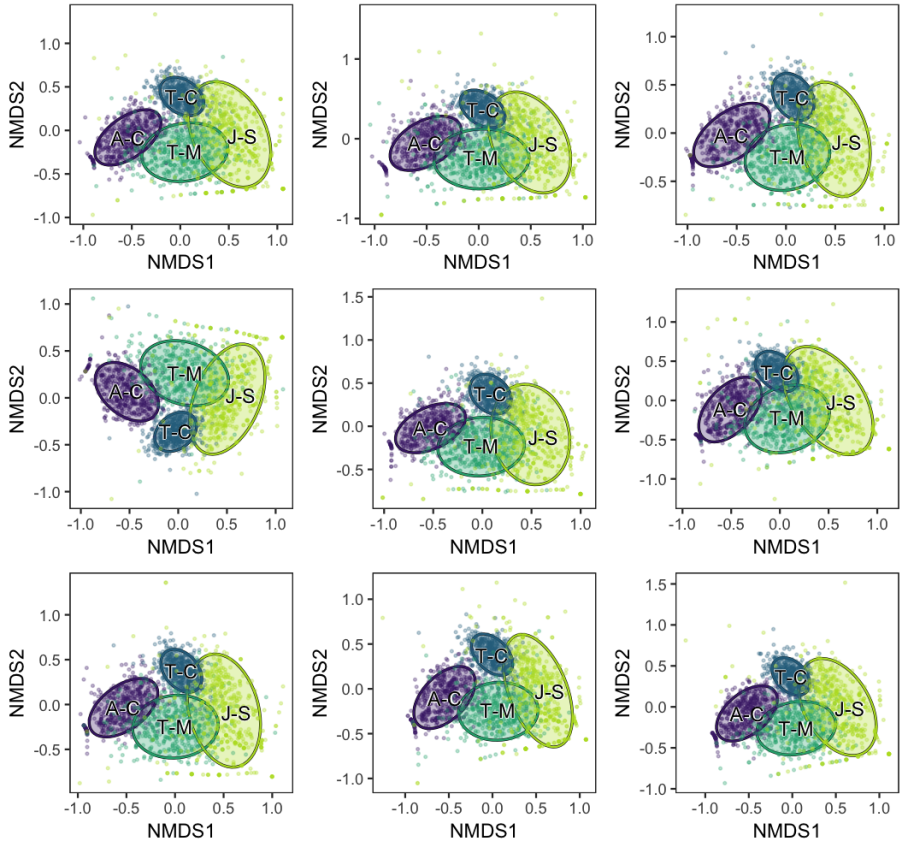

Figure S2. NMDS plot of plant hosts subsampled to 500 cm^2 of leaf surface area, calculated from presence/absence data. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

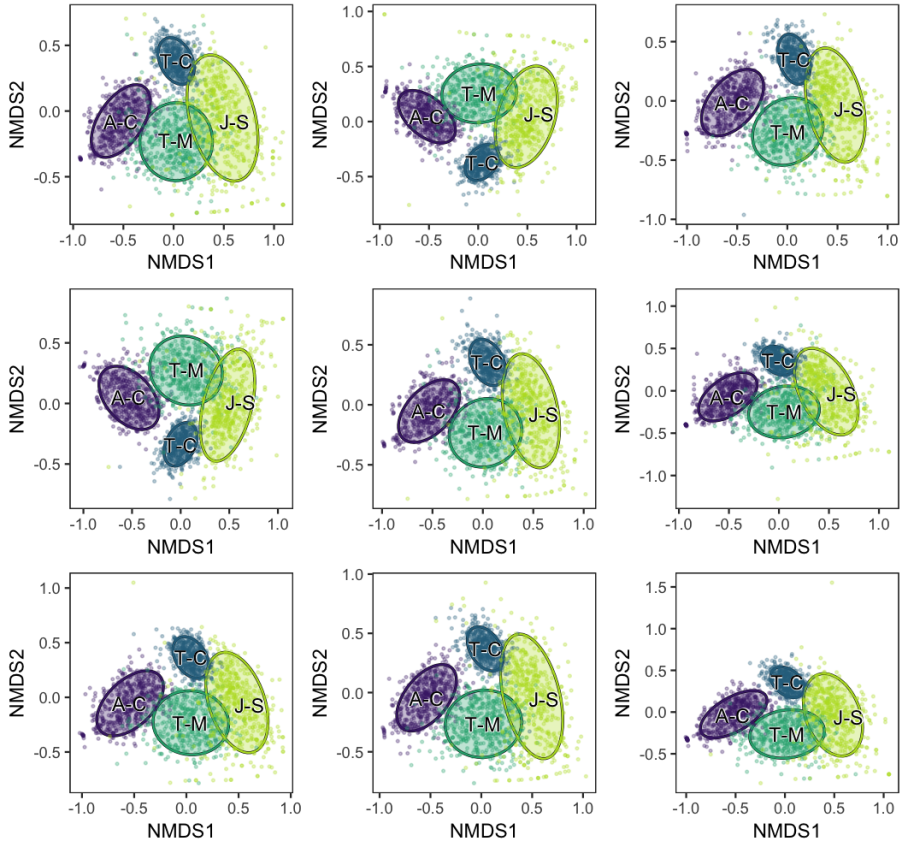

Figure S3. NMDS plot of plant hosts subsampled to 750 cm^2 of leaf surface area, calculated from presence/absence data. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

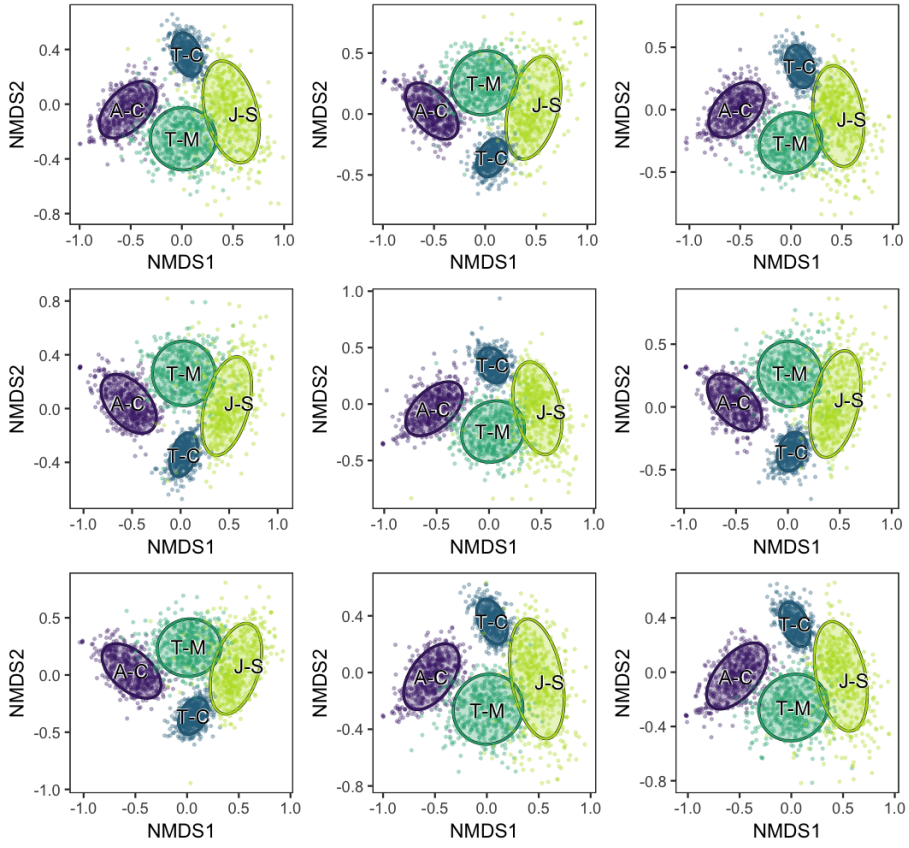

Figure S4. NMDS plot of plant hosts subsampled to 1,000 cm^2 of leaf surface area, calculated from presence/absence data. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

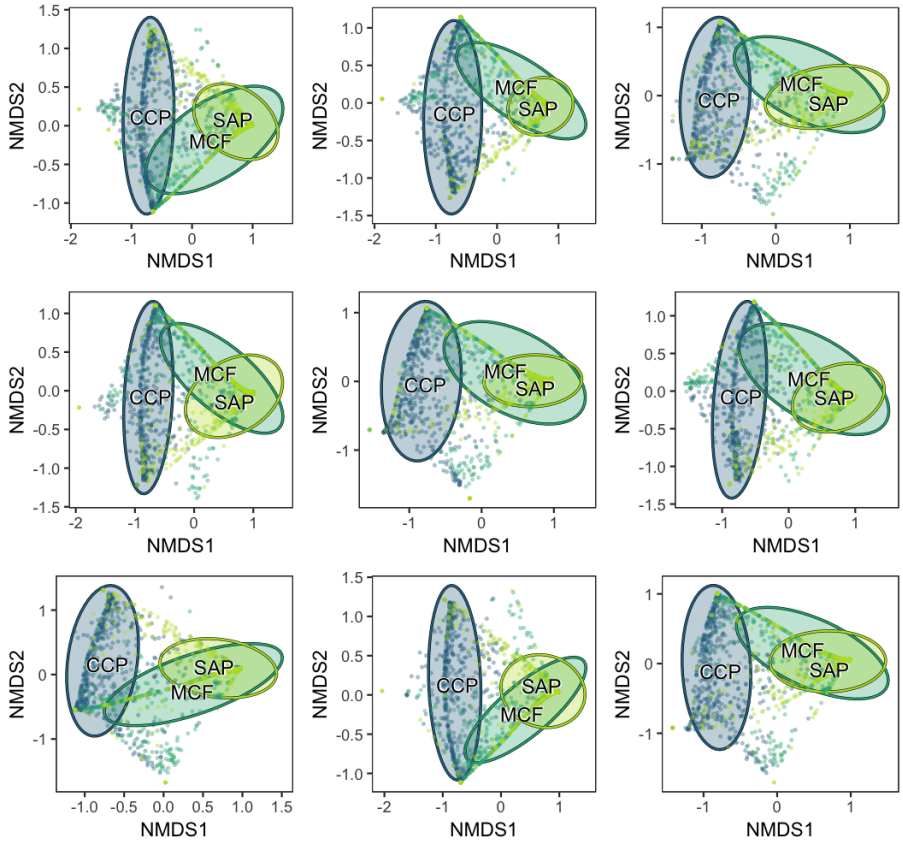

Figure S5. NMDS plot of assemblages subsampled to 250 cm^2 of leaf surface area, calculated from presence/absence data. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

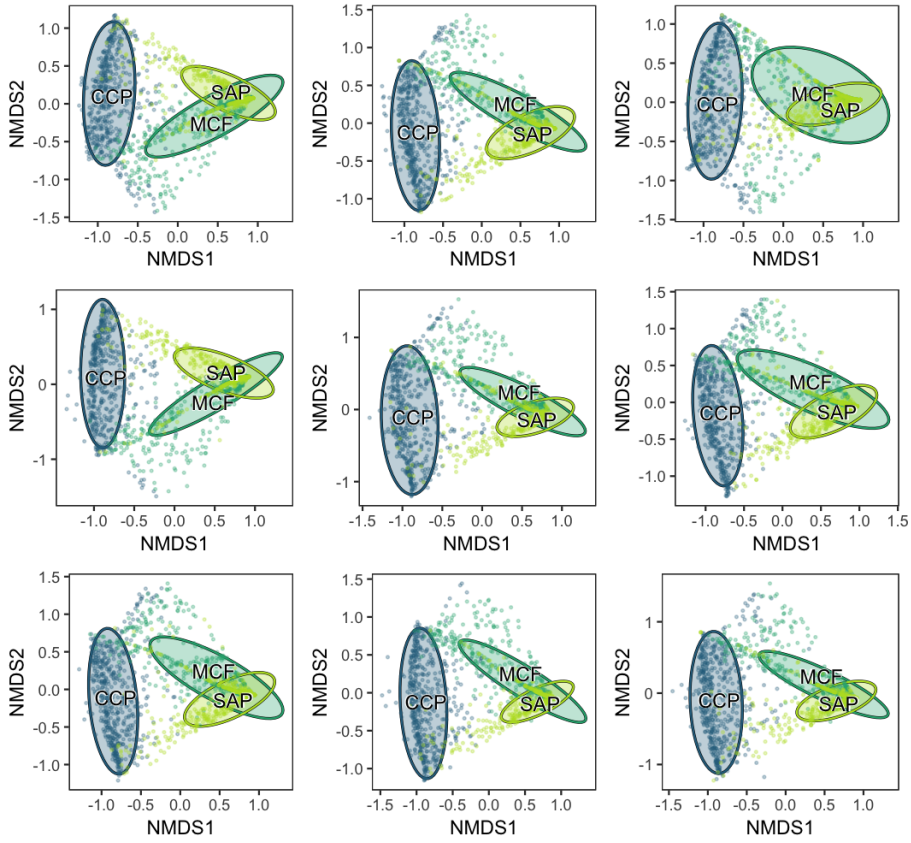

Figure S6. NMDS plot of assemblages subsampled to 500 cm^2 of leaf surface area, calculated from presence/absence data. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

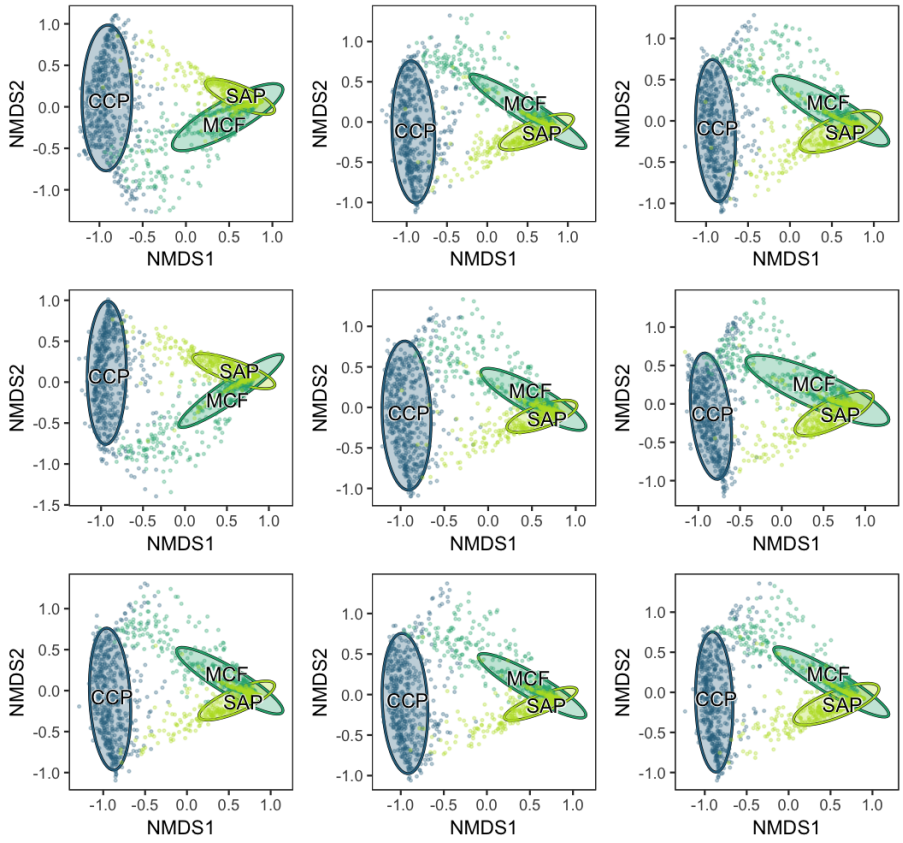

Figure S7. NMDS plot of assemblages subsampled to 750 cm^2 of leaf surface area, calculated from presence/absence data. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

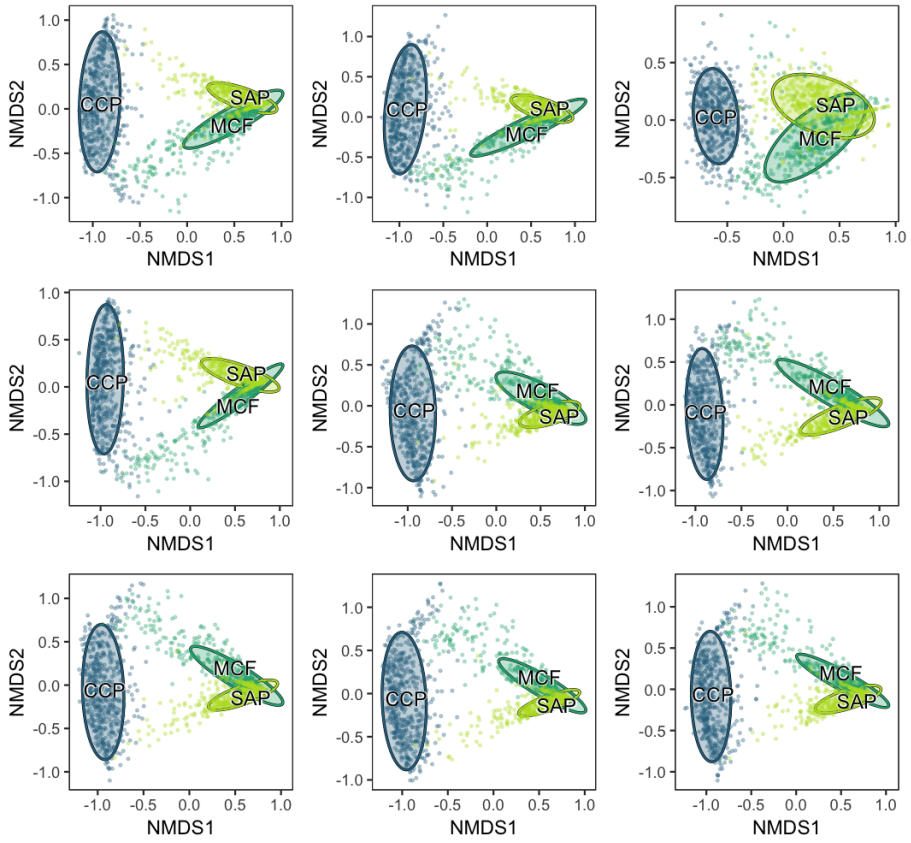

Figure S8. NMDS plot of assemblages subsampled to 1,000 cm^2 of leaf surface area, calculated from presence/absence data. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

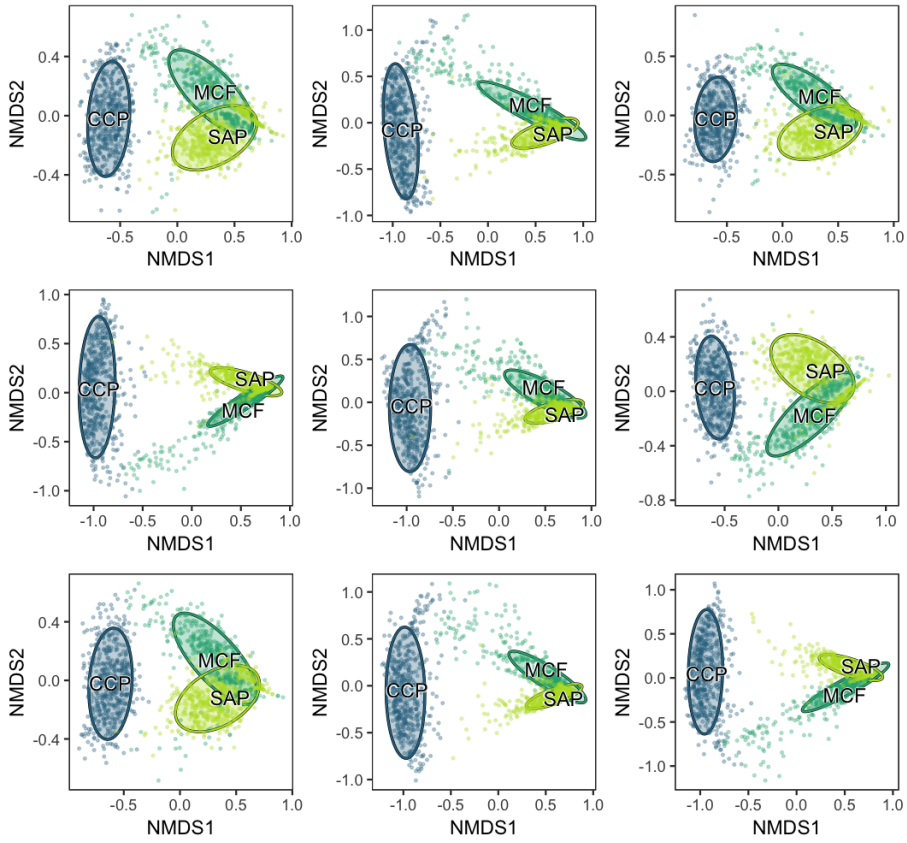

Figure S9. NMDS plot of assemblages subsampled to 1,250 cm^2 of leaf surface area, calculated from presence/absence data. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

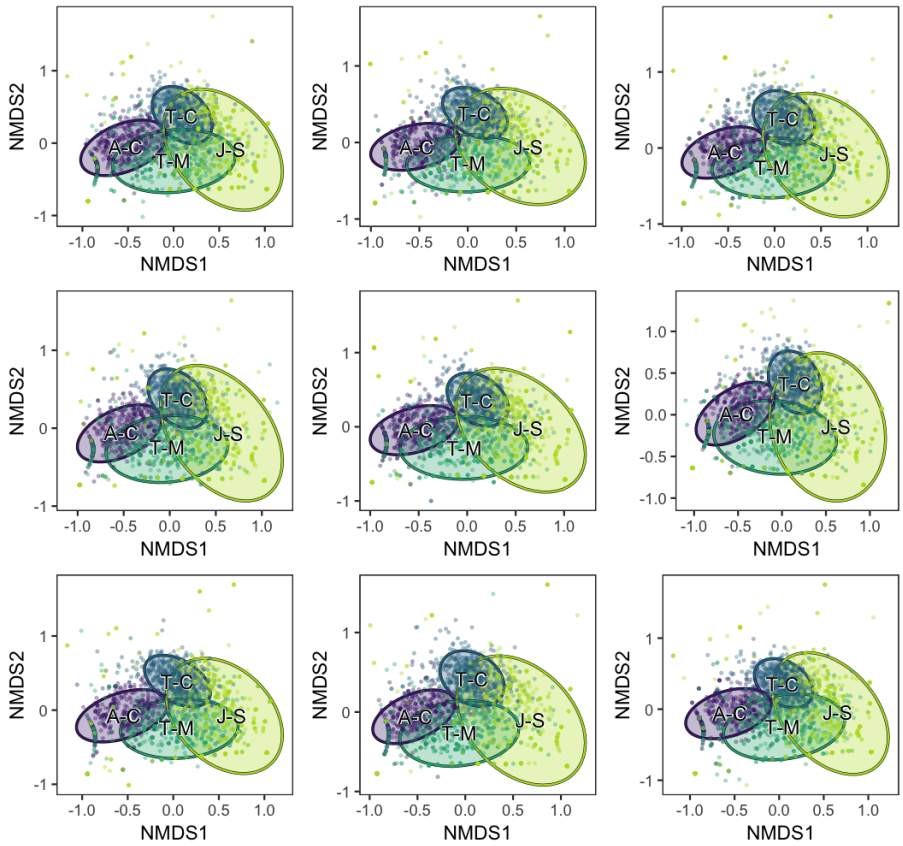

Figure S10. NMDS plot of plant hosts subsampled to 250 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

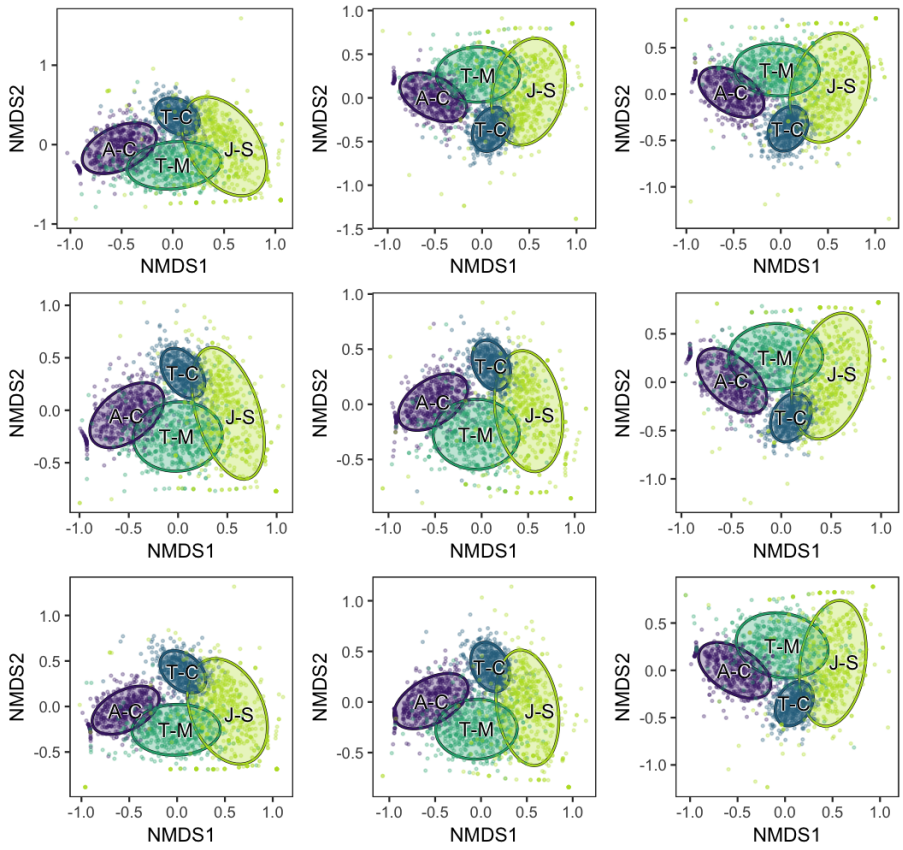

Figure S11. NMDS plot of plant hosts subsampled to 500 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

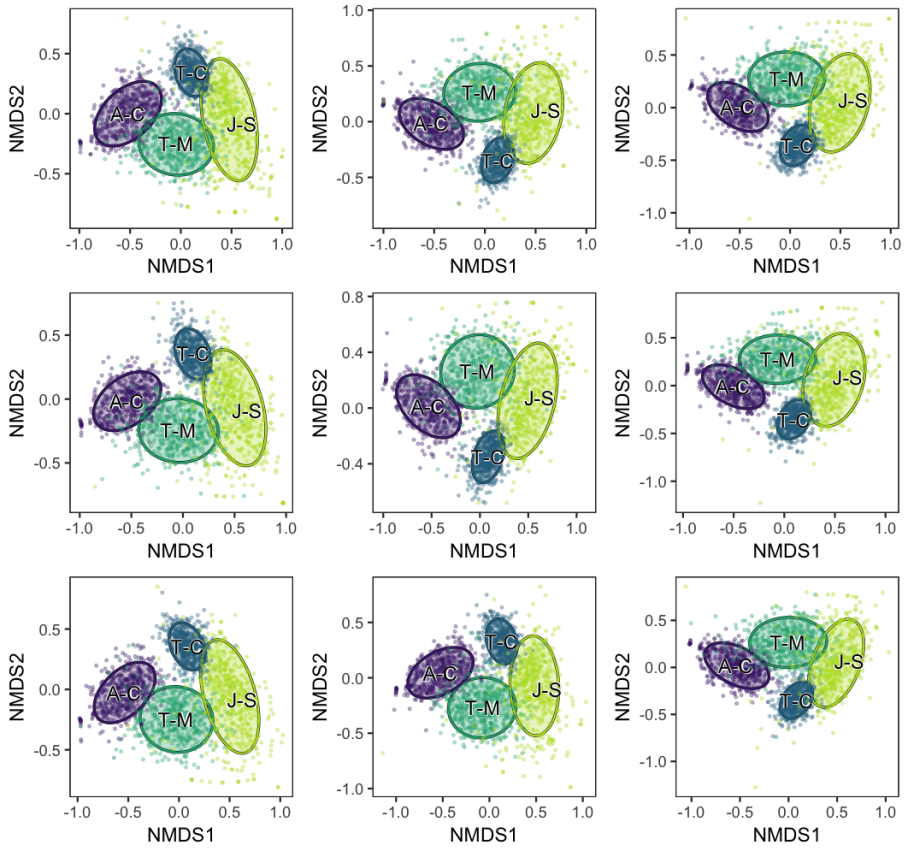

Figure S12. NMDS plot of plant hosts subsampled to 750 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

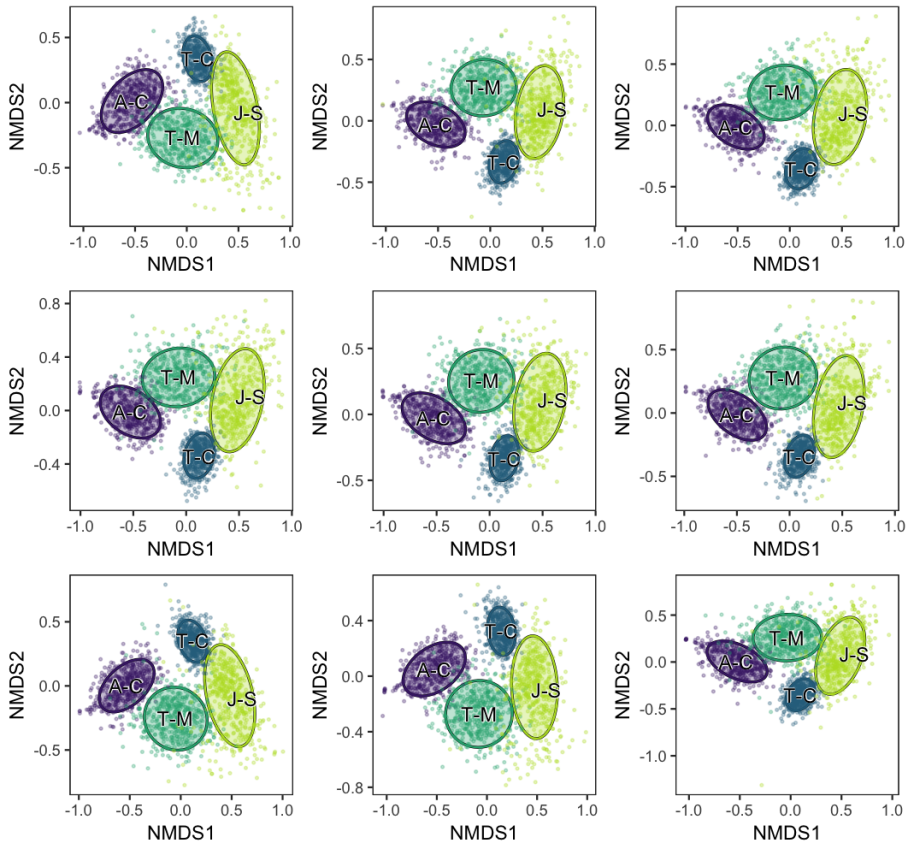

Figure S13. NMDS plot of plant hosts subsampled to 1,000 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

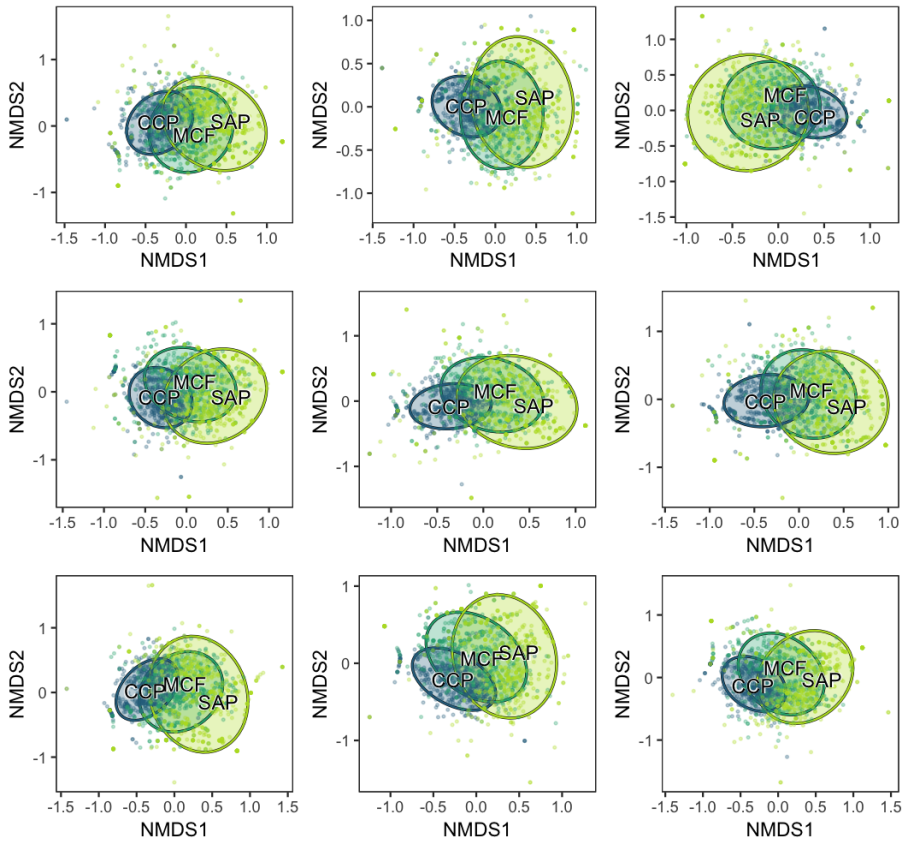

Figure S14. NMDS plot of assemblages subsampled to 250 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

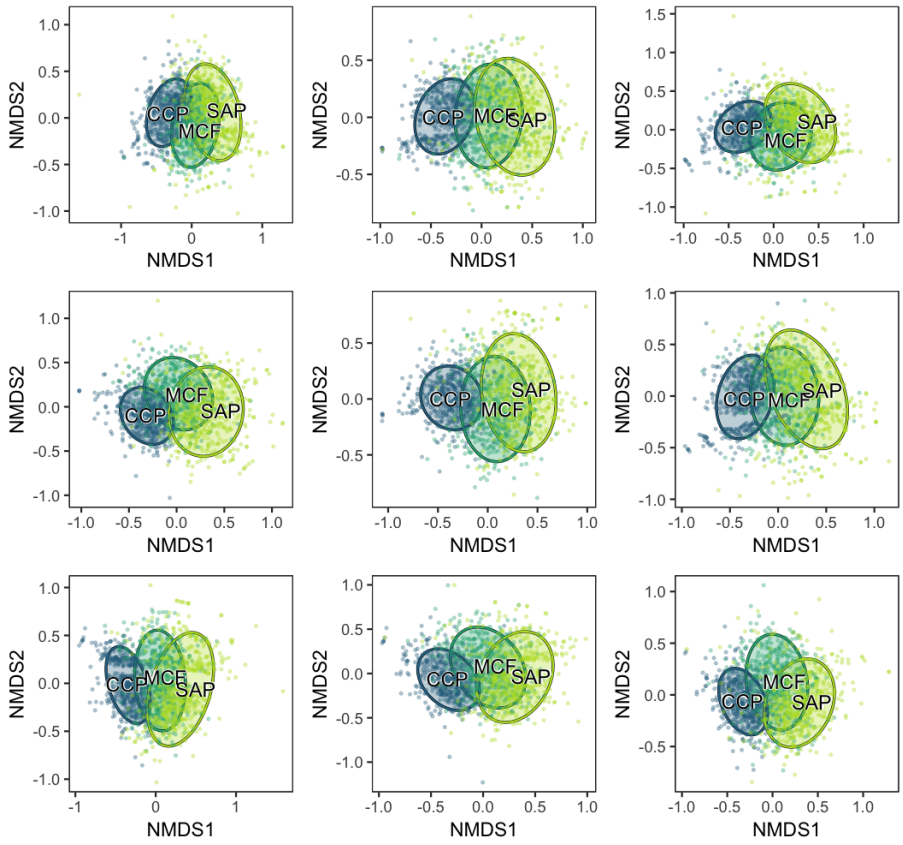

Figure S15. NMDS plot of assemblages subsampled to 500 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

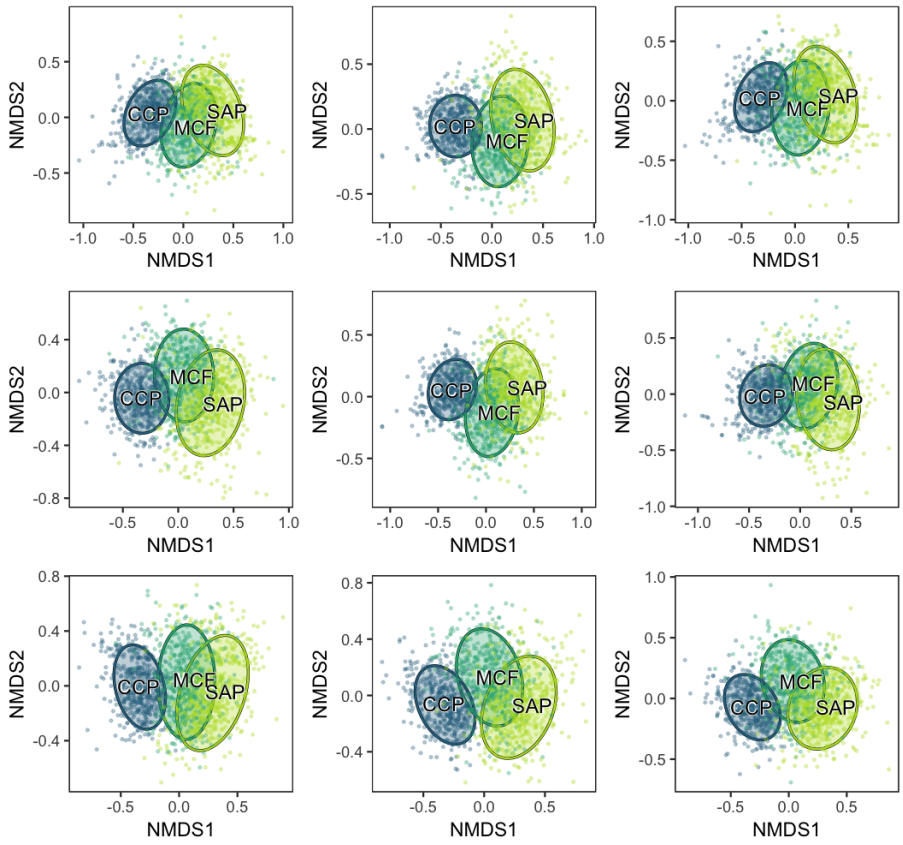

Figure S16. NMDS plot of assemblages subsampled to 750 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

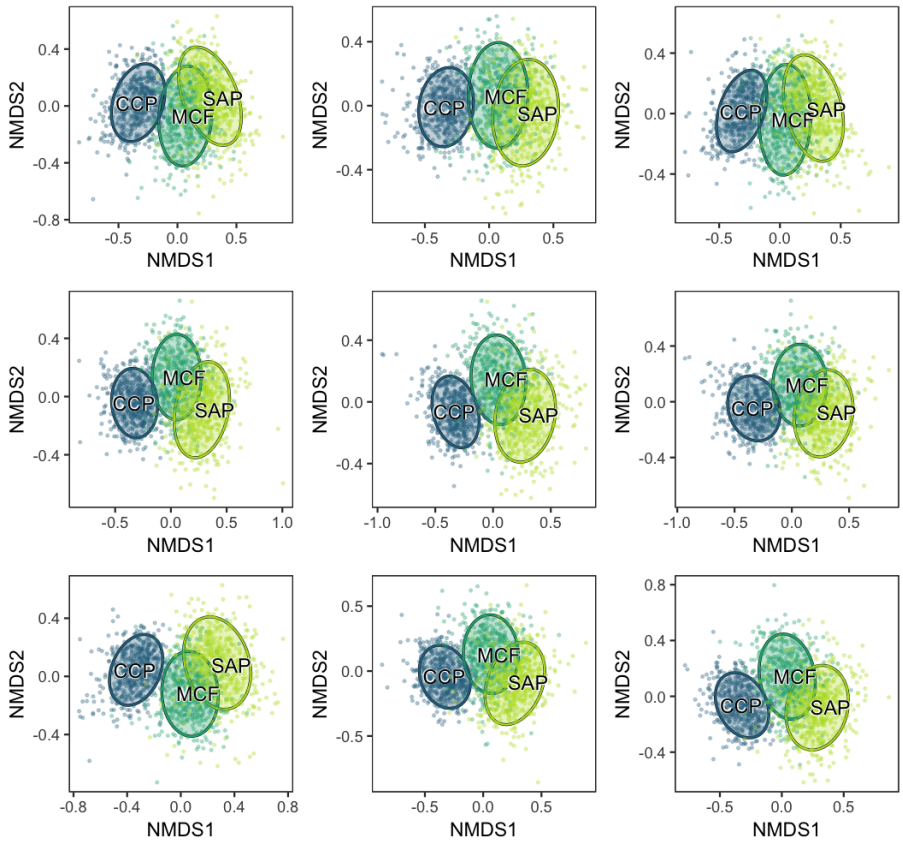

Figure S17. NMDS plot of assemblages subsampled to 1,000 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

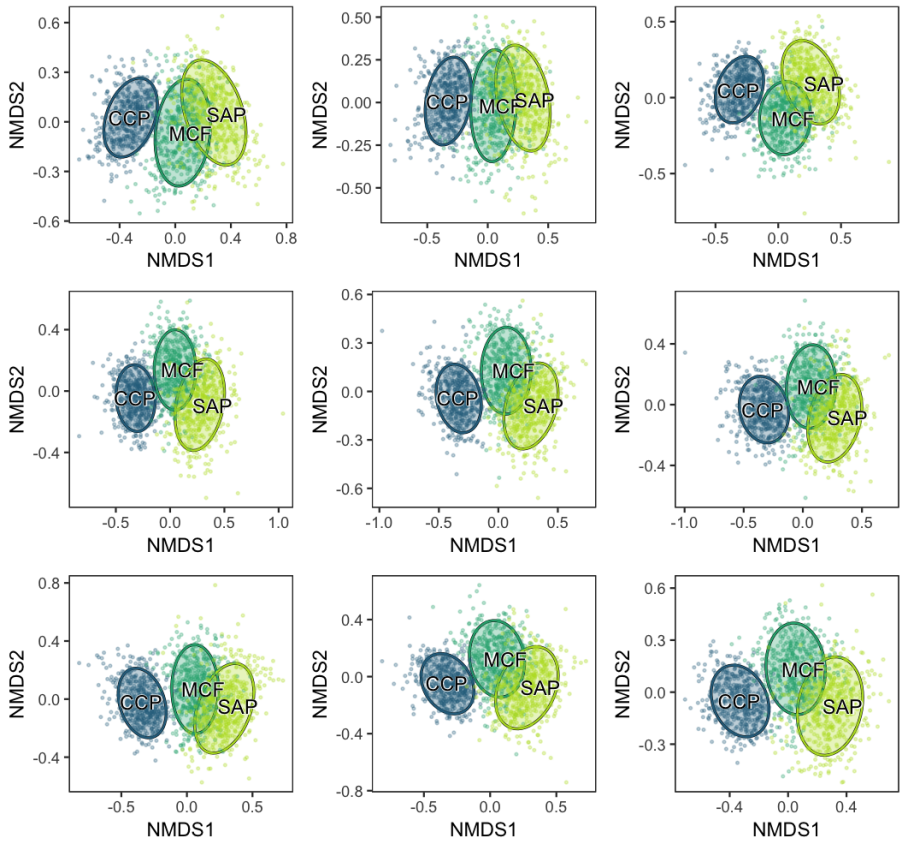

Figure S18. NMDS plot of assemblages subsampled to 1,250 cm^2 of leaf surface area, calculated from presence/absence data. All *Johniphyllum multinerve* specimens with a surface area below 1.306 cm^2 and all *Auritifolia waggoneri* specimens with a surface area below 3.7 cm^2 were discarded from the dataset, because the inclusion of these specimens did not change the mean estimates or the confidence intervals for DT diversity. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

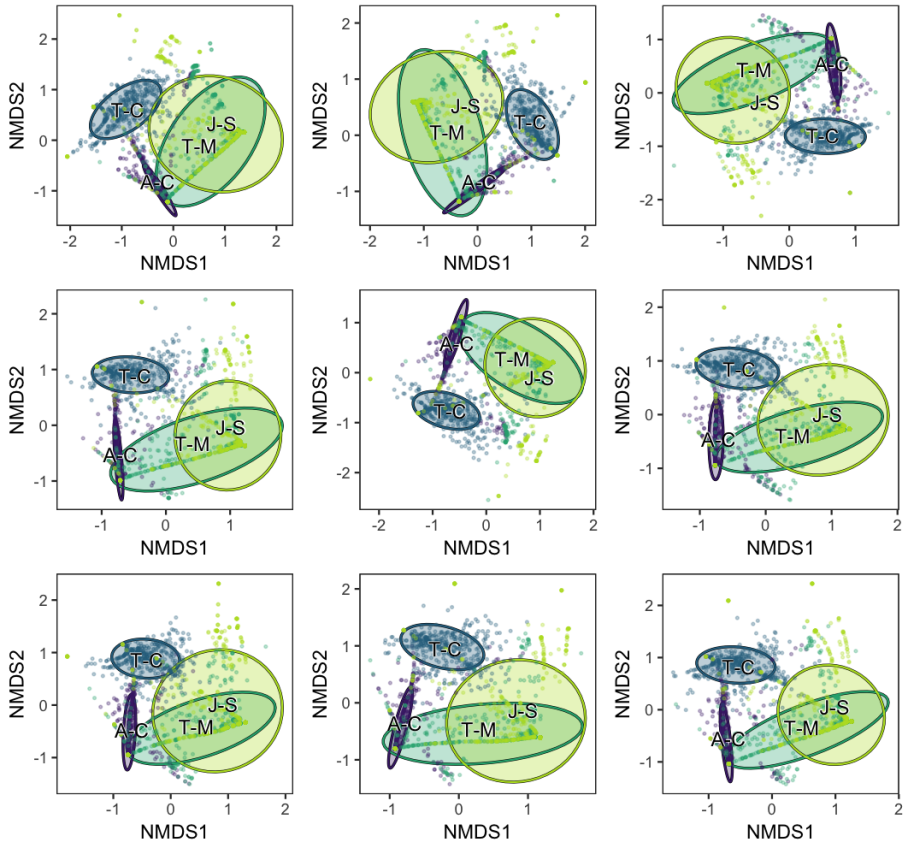

Figure S19. NMDS plot of plant hosts subsampled to 250 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

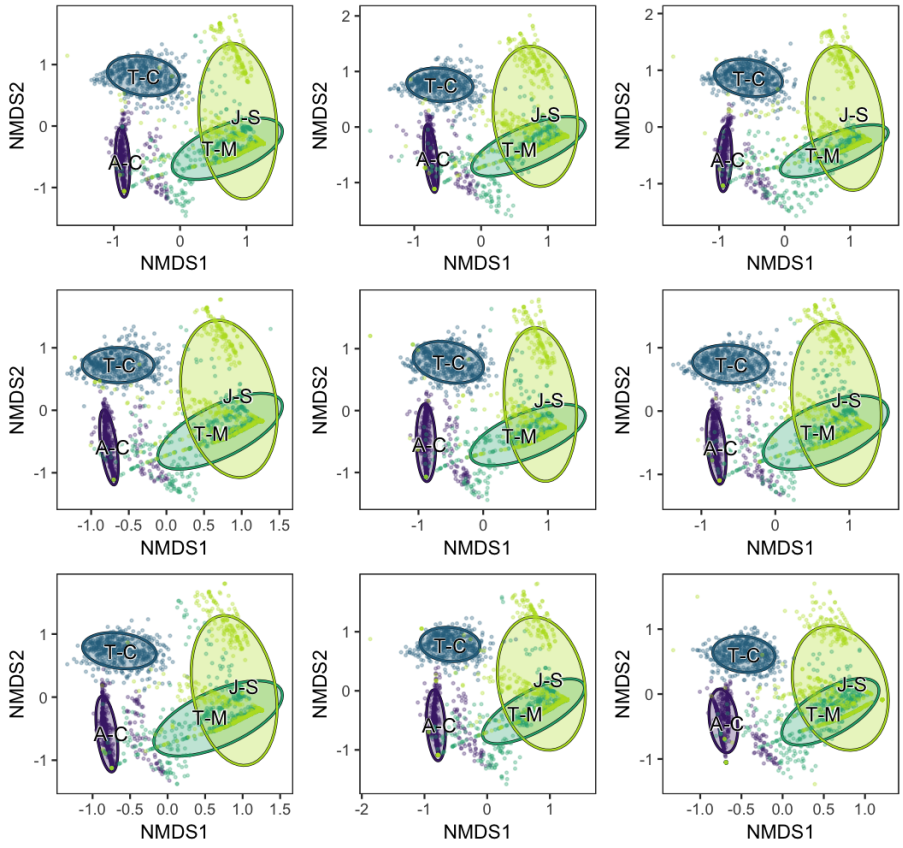

Figure S20. NMDS plot of plant hosts subsampled to 500 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

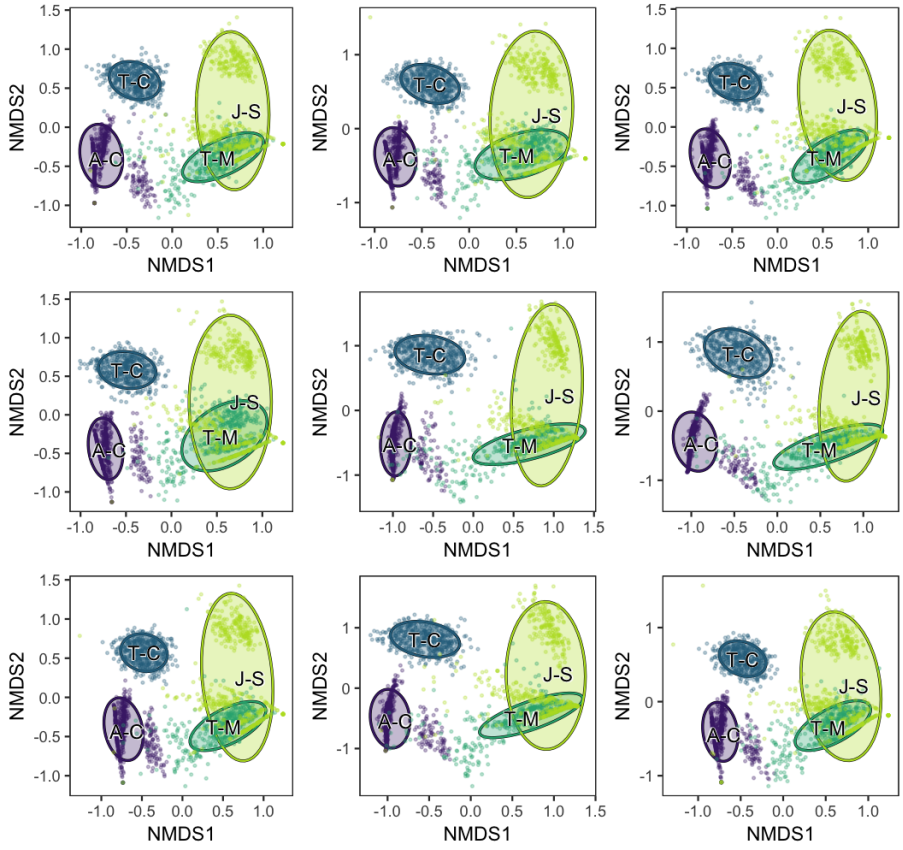

Figure S21. NMDS plot of plant hosts subsampled to 750 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

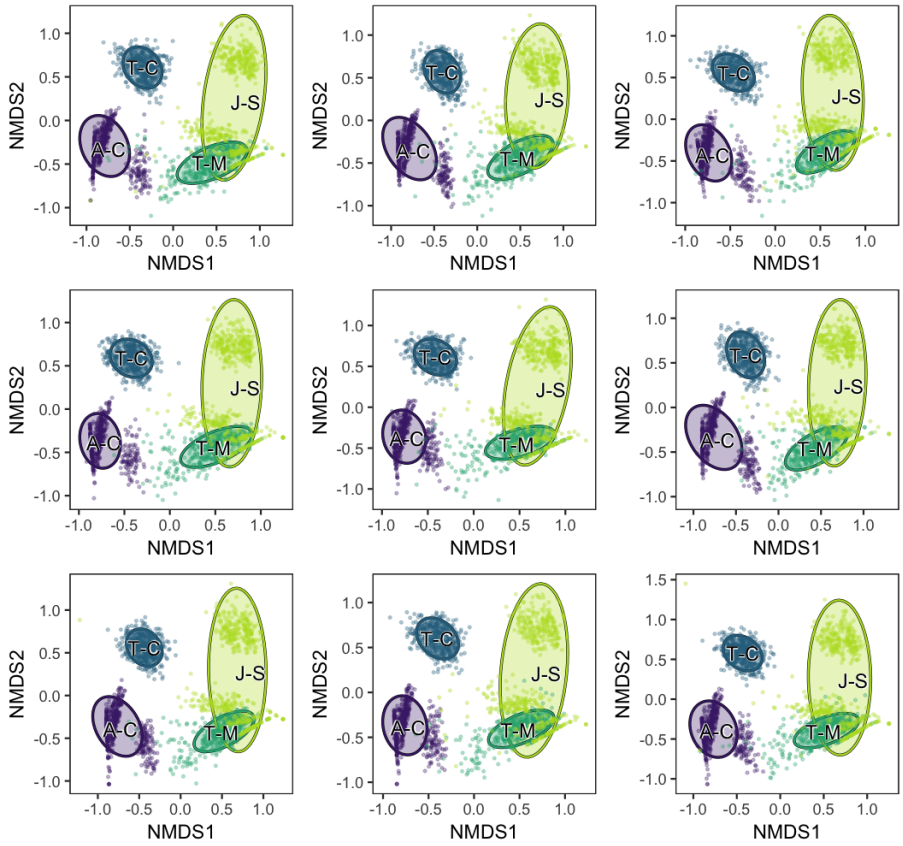

Figure S22. NMDS plot of plant hosts subsampled to 1,000 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

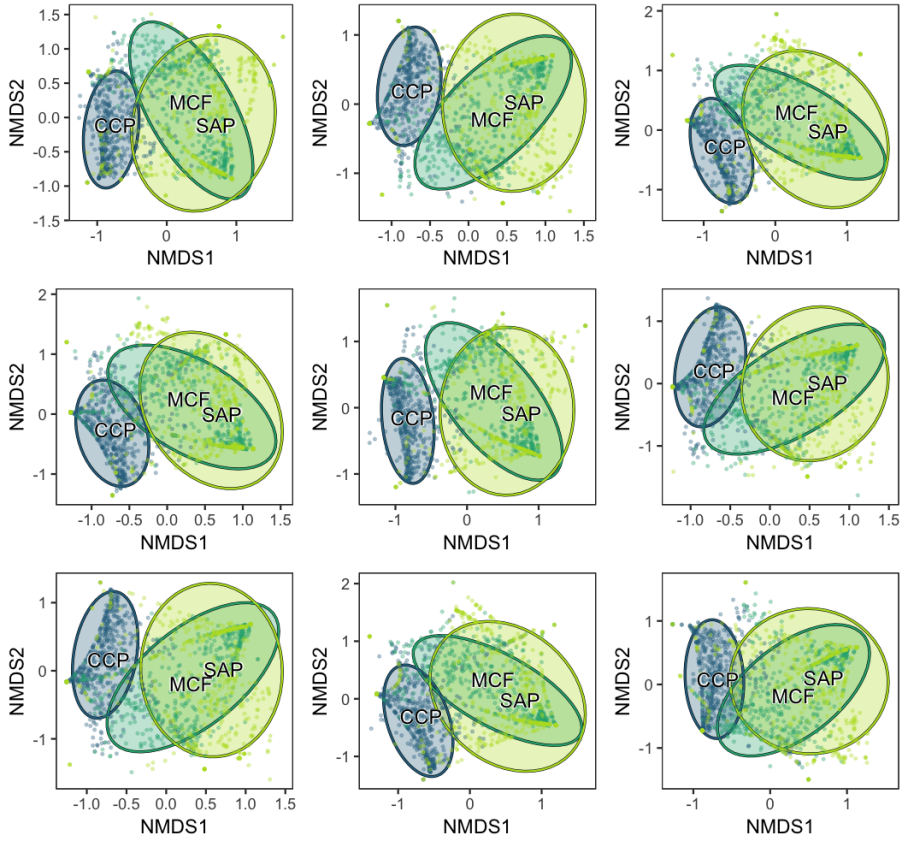

Figure S23. NMDS plot of assemblages subsampled to 250 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

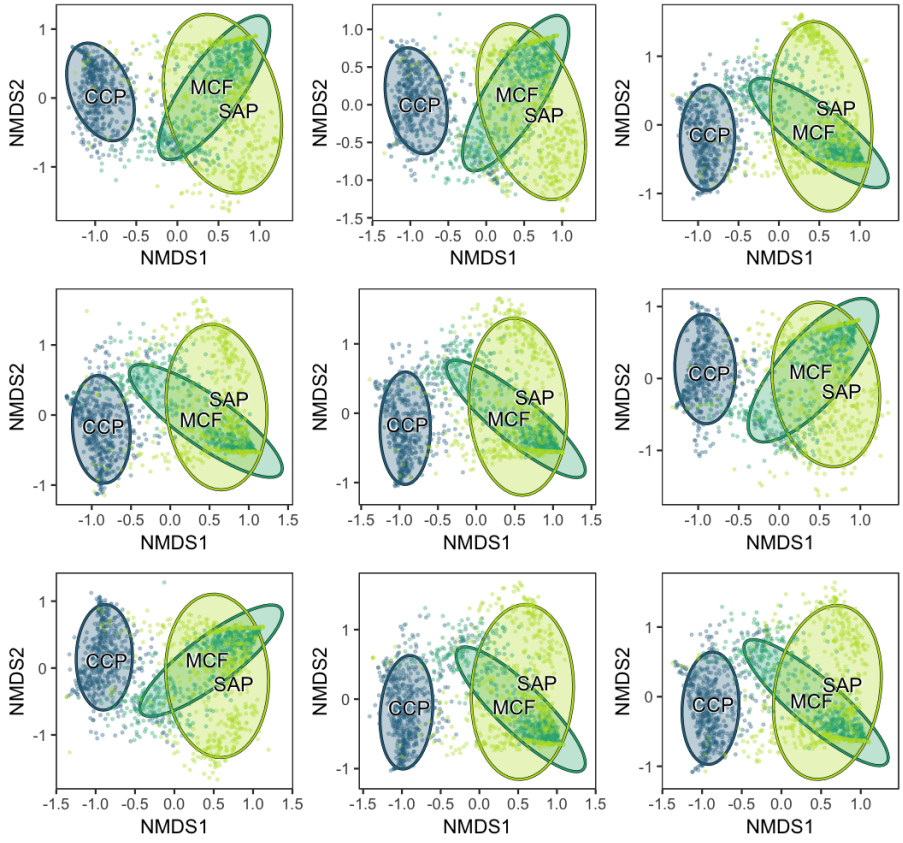

Figure S24. NMDS plot of assemblages subsampled to 500 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

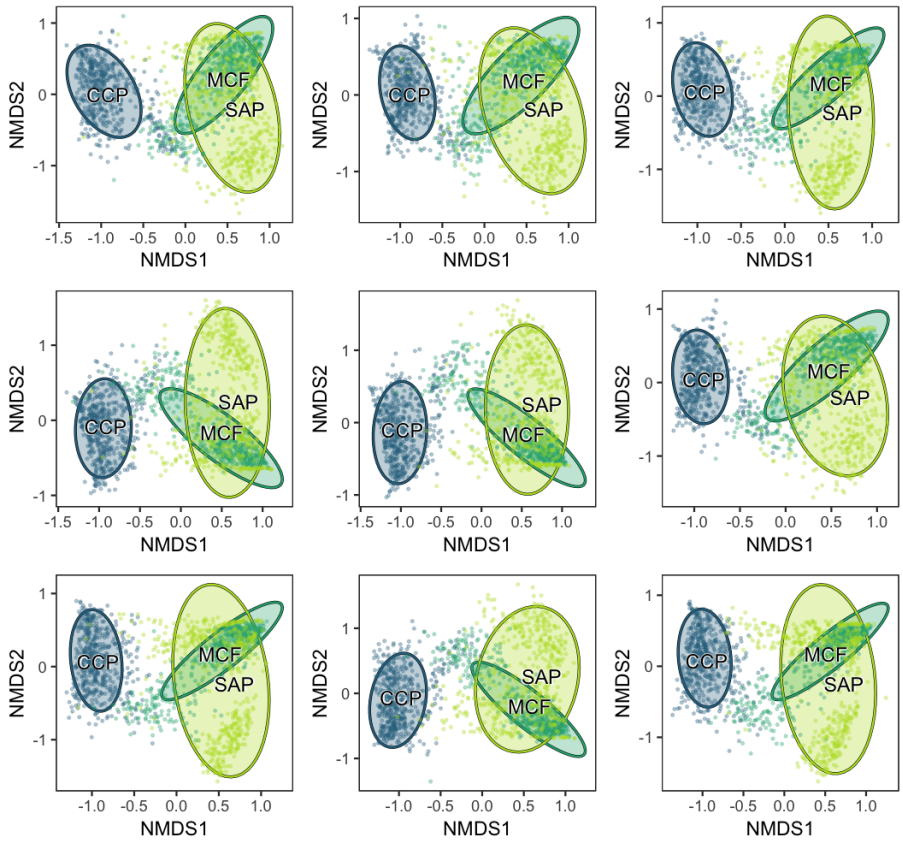

Figure S25. NMDS plot of assemblages subsampled to 750 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

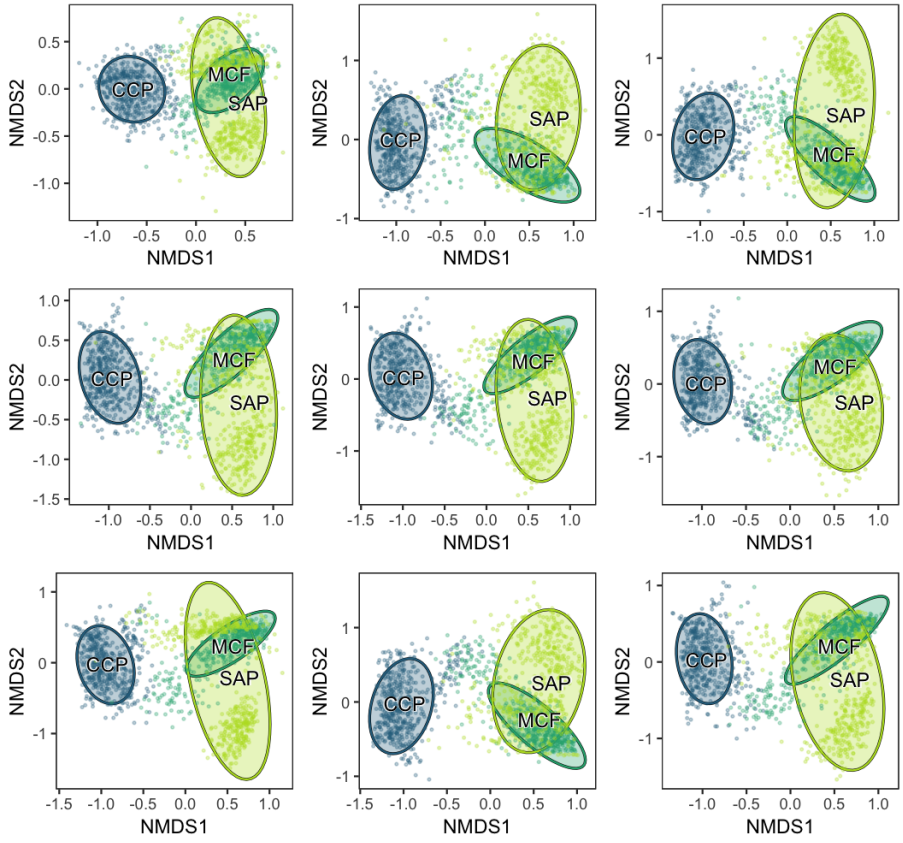

Figure S26. NMDS plot of assemblages subsampled to 1,000 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

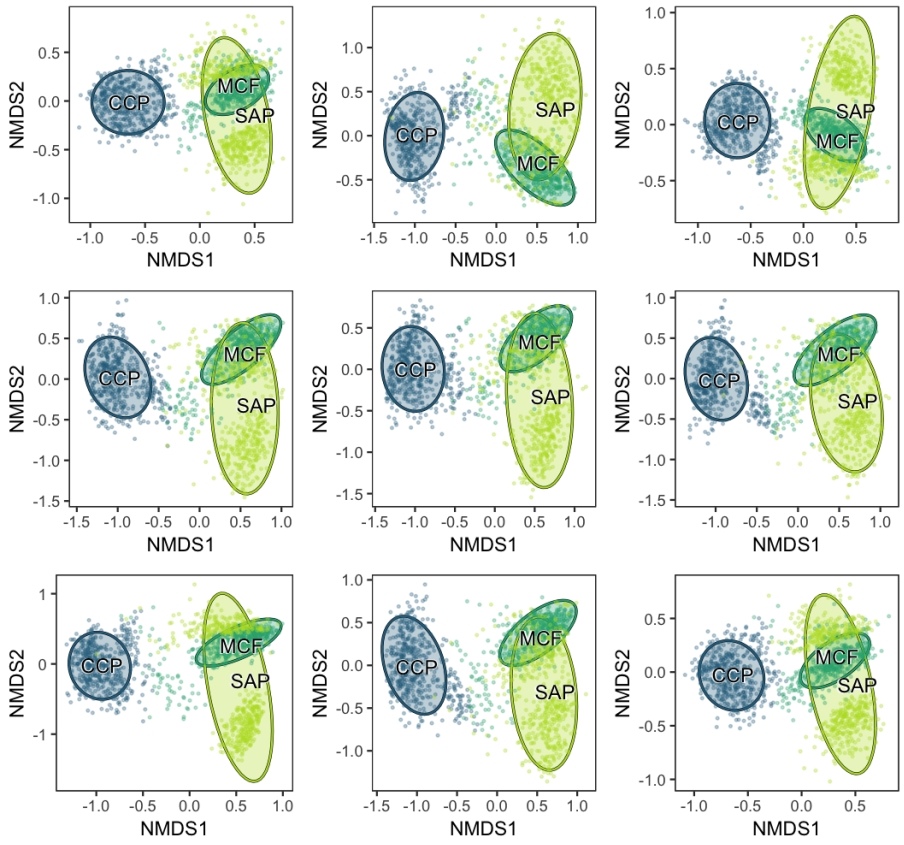

Figure S27. NMDS plot of assemblages subsampled to 1,250 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding retained as separate functional feeding groups. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

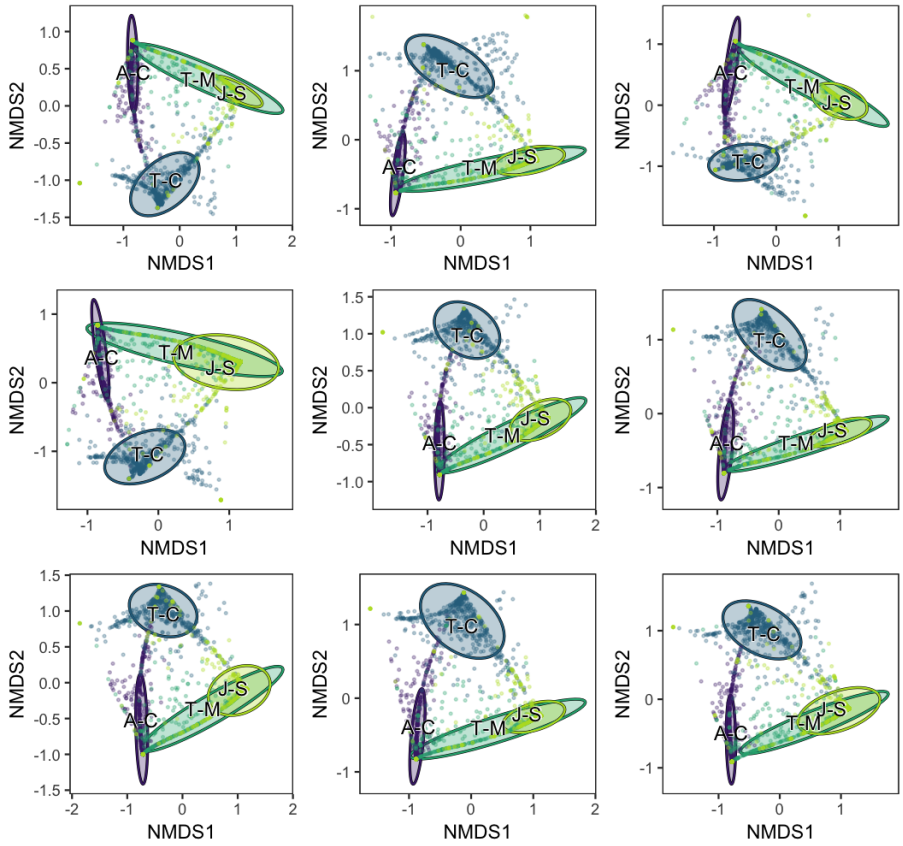

Figure S28. NMDS plot of plant hosts subsampled to 250 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

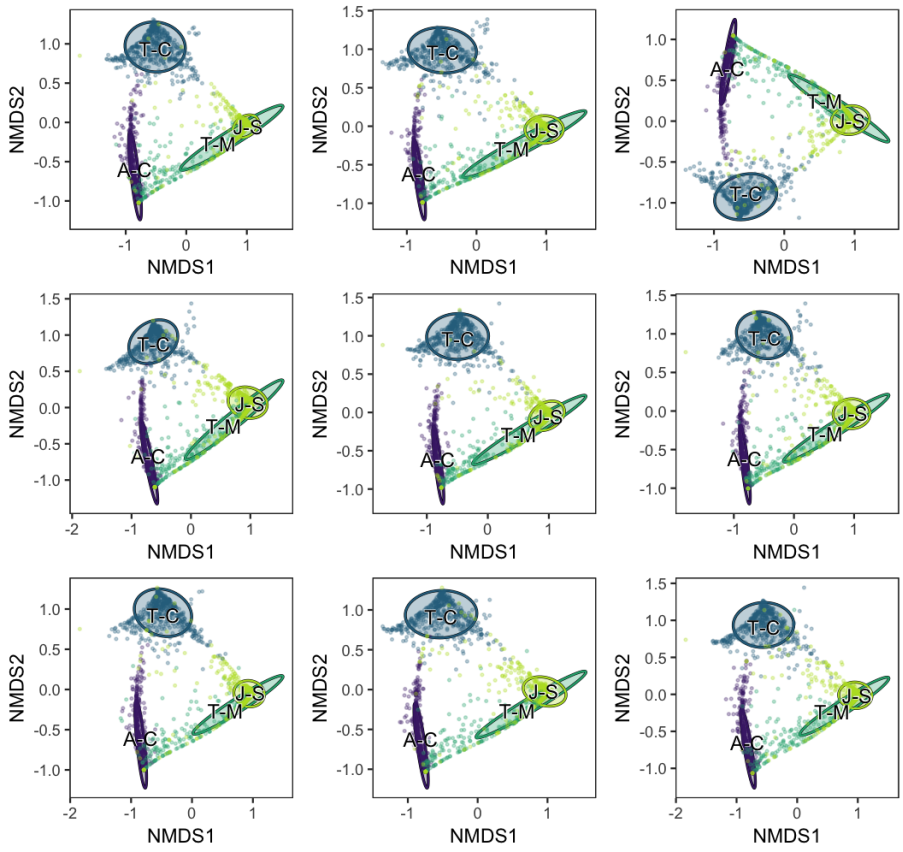

Figure S29. NMDS plot of plant hosts subsampled to 500 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

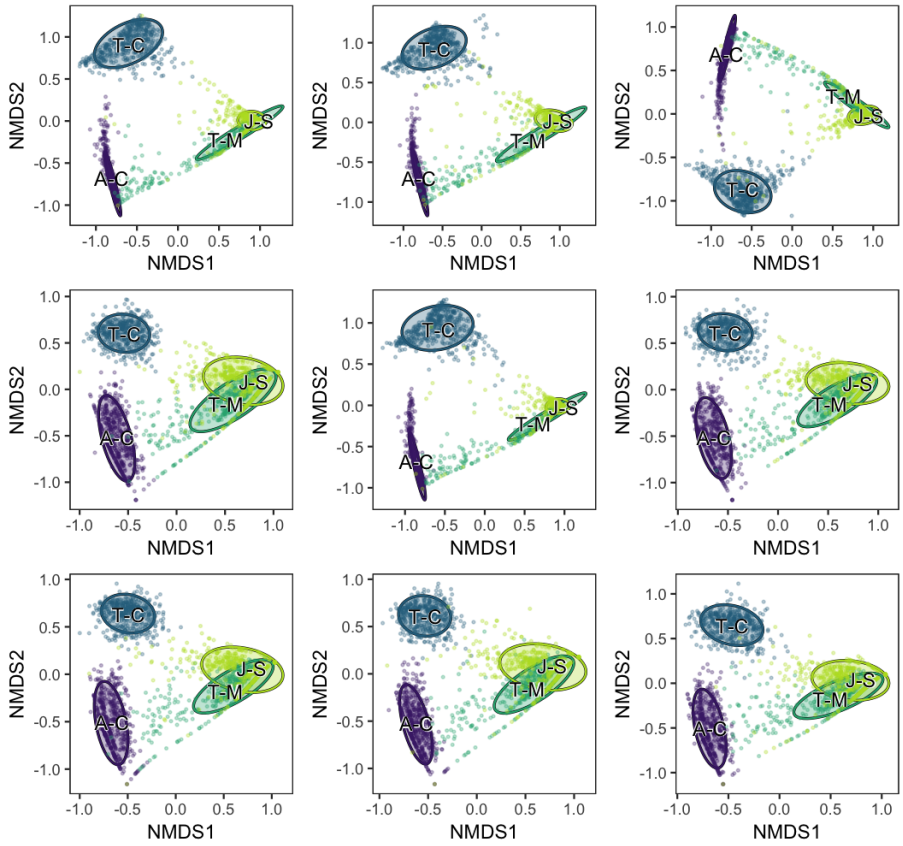

Figure S30. NMDS plot of plant hosts subsampled to 750 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

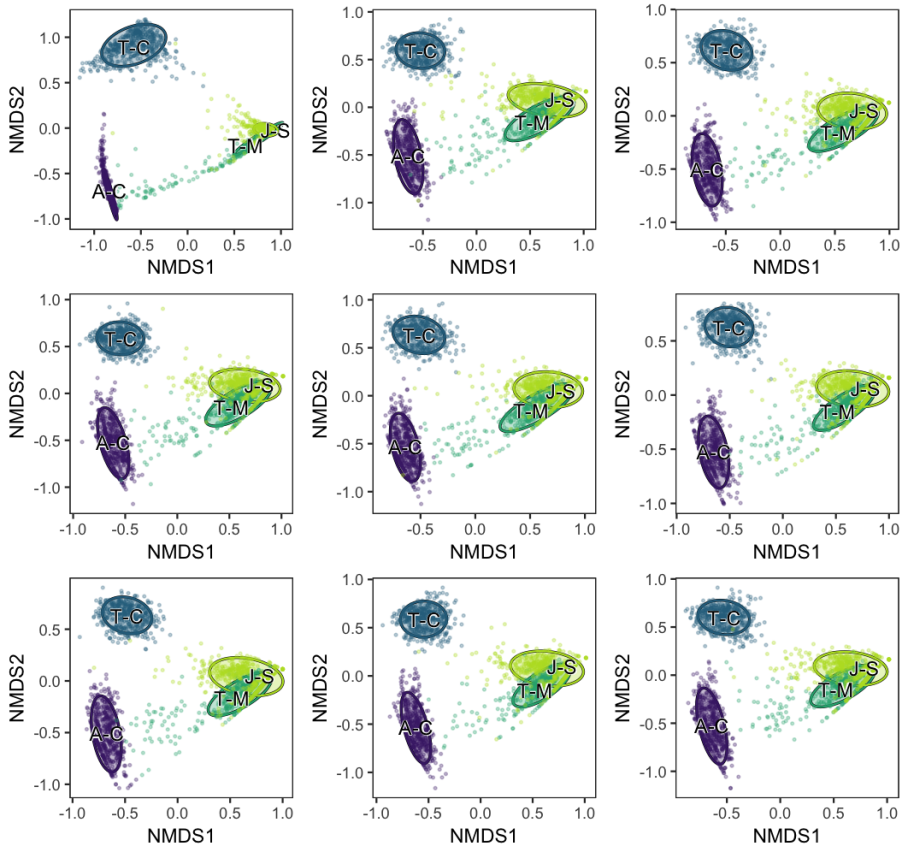

Figure S31. NMDS plot of plant hosts subsampled to 1,000 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. *Auritifolia waggoneri* from Colwell Creek Pond (A-C) is in purple, *Taeniopteris* spp. from Colwell Creek Pond (T-C) is in blue, *Taeniopteris* spp. from Mitchell Creek Flats (T-M) is in dark green, and *Johniphyllum multinerve* from South Ash Pasture (J-S) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

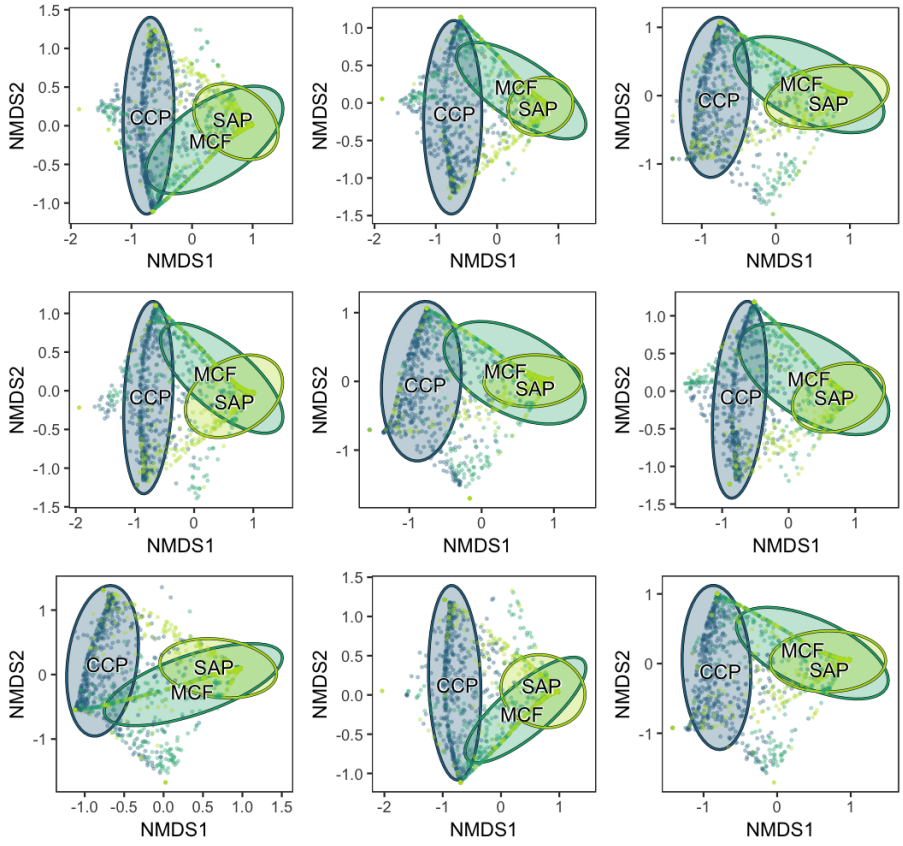

Figure S32. NMDS plot of assemblages subsampled to 250 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

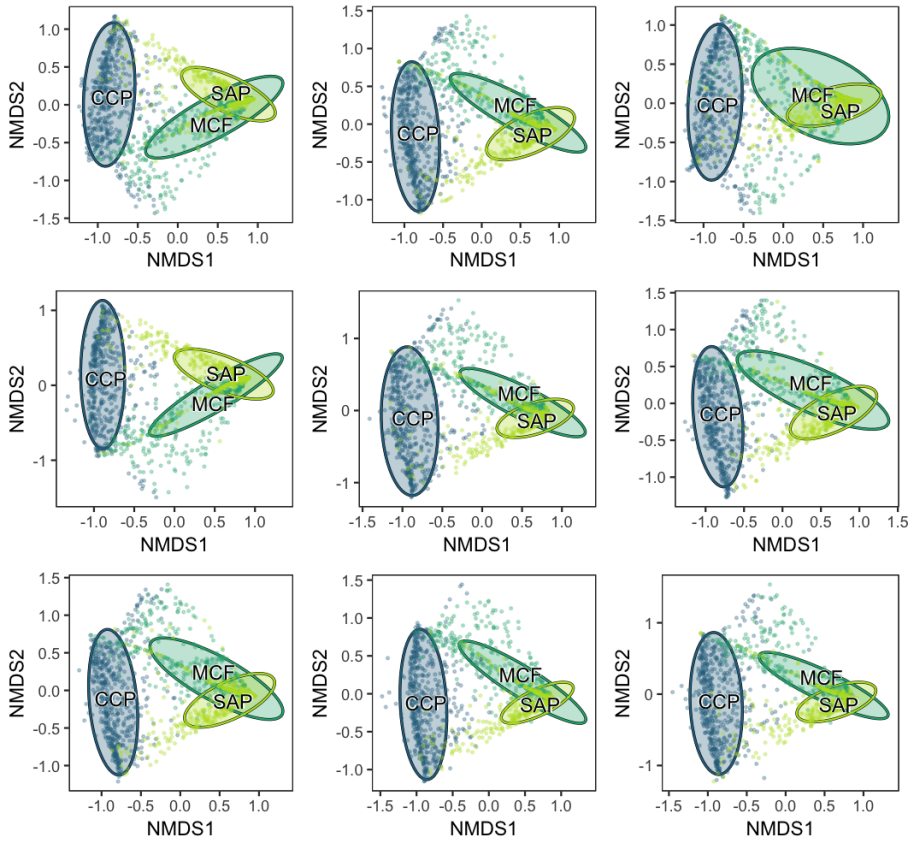

Figure S33. NMDS plot of assemblages subsampled to 500 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

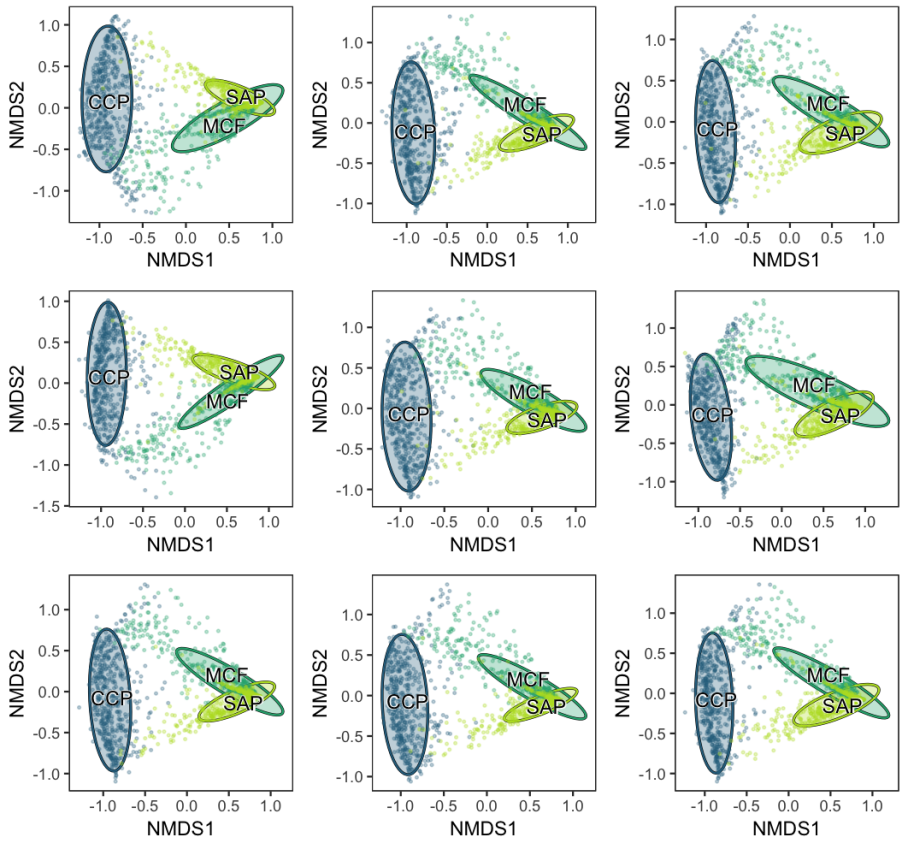

Figure S34. NMDS plot of assemblages subsampled to 750 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

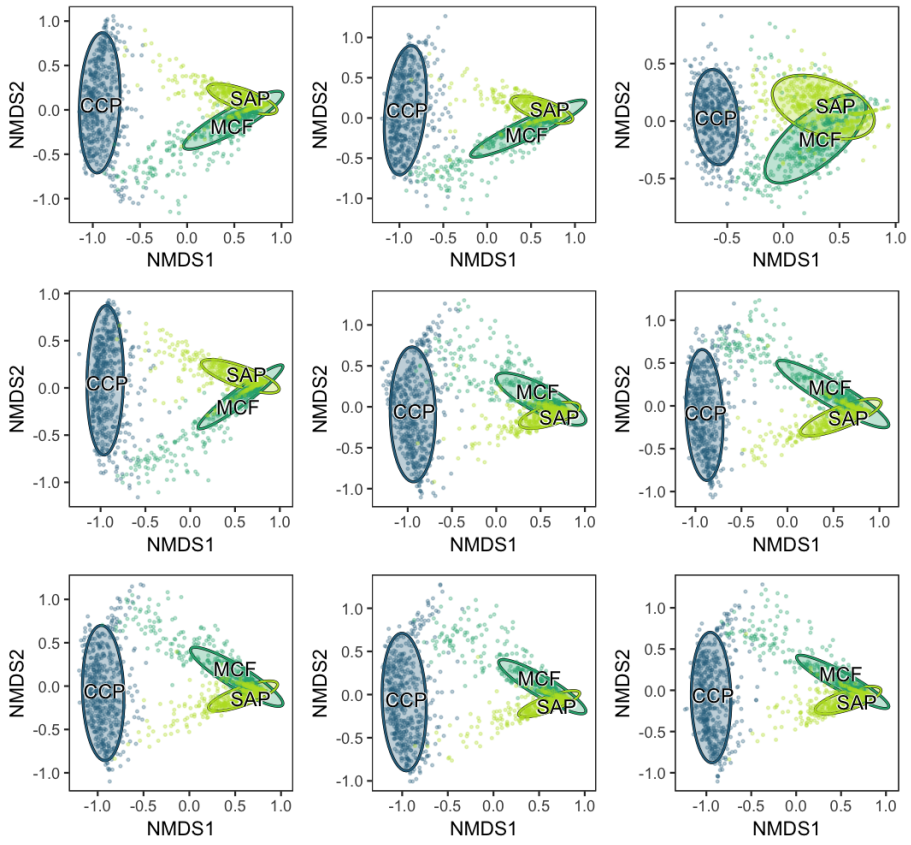

Figure S35. NMDS plot of assemblages subsampled to 1,000 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

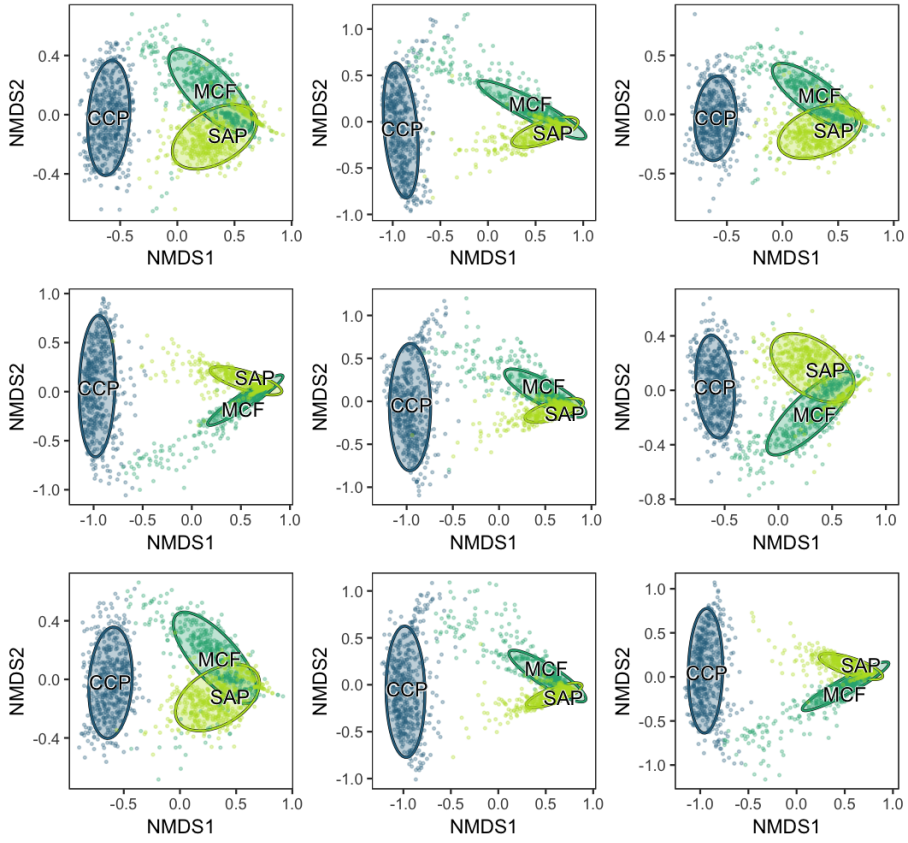

Figure S36. NMDS plot of assemblages subsampled to 1,250 cm^2 of leaf surface area, calculated from leaf surface area, with hole feeding, margin feeding, and surface feeding treated as a single functional feeding group. Colwell Creek Pond (CCP) is in blue, Mitchell Creek Flats (MCF) is in dark green, and South Ash Pasture (SAP) is in light green. The convex hulls represent 84% confidence intervals for the location of the centroid.

Table 1. Studies of herbivory included in Pinheiro et al. (2016).

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Labandeira et al. (2013)	Cairo Quarry	United States	Devonian	Eifelian–Givetian	Yes	No
Labandeira et al. (2013)	Bates Hollow Quarry	United States	Devonian	Eifelian–Givetian	Yes	No
Labandeira and Allen (2007)	Coprolite Bone Bed	United States	Permian	Sakmarian	Yes	Yes
Adami-Rodrigues et al. (2004); Pinheiro et al. (2012a)	Morro do Papaléo, N3/4	Brazil	Permian	Sakmarian	Yes	No
Pinheiro et al. (2012a, 2015)	Morro do Papaléo, Faxinal	Brazil	Permian	Sakmarian	Yes	No
Pinheiro et al. (2012a, b)	Rio da Estiva	Brazil	Permian	Sakmarian	Yes	No
Adami-Rodrigues et al. (2004); Pinheiro et al. (2012a)	Faxinal Mine	Brazil	Permian	Sakmarian	Yes	No
Adami-Rodrigues et al. (2004); Pinheiro et al. (2012a)	Quitéria	Brazil	Permian	Sakmarian	Yes	No
Adami-Rodrigues et al. (2004); Pinheiro et al. (2012a)	Morro do Papaléo, N7/8	Brazil	Permian	Sakmarian–Artinskian	Yes	No
Pinheiro et al. (2015)	Arroyo Totoral	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Pinheiro et al. (2015)	Bajo de Véliz	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Gallego et al. (2014)	Aguada Loca	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Gallego et al. (2014)	Betancourt	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Gallego et al. (2014)	La Casilda	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Gallego et al. (2014)	Ferrarotti IIB	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Gallego et al. (2014)	Pique Carbón	Argentina	Permian	Sakmarian–Kungurian	Yes	No
Beck and Labandeira (1998)	Taint	United States	Permian	Artinskian	Yes	Yes
Adami-Rodrigues et al. (2004); Pinheiro et al. (2012a)	Minas do Leão	Brazil	Permian	Artinskian–Kungurian	Yes	No
Schachat et al. (2014)	Colwell Creek Pond	United States	Permian	Kungurian	Yes	Yes
Prevec et al. (2009)	Clouston Farm	South Africa	Permian	Wuchiapingian	Yes	No
Wappler et al. (2015)	Monte Agnello MA1	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA2	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA3	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA4	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA5	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA6	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA7	Italy	Triassic	Ladinian	Yes	No
Wappler et al. (2015)	Monte Agnello MA8	Italy	Triassic	Ladinian	Yes	No
Scott et al. (2004)	Aasvoëlberg (Aas 411)	South Africa	Triassic	Carnian	Yes	No
Scott et al. (2004)	Birds River (Bir 111)	South Africa	Triassic	Carnian	Yes	No
Scott et al. (2004)	Kapokkraal (Kap 111)	South Africa	Triassic	Carnian	Yes	No
Scott et al. (2004)	Waldeck (Wal 111)	South Africa	Triassic	Carnian	Yes	No

Table 2. Studies of herbivory included in Pinheiro et al. (2016), continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Labandeira et al. (2002)	Hell Creek 433	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 434	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1851	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1850	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1852	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 430	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 571	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 572	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1860	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 567	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2204	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2203	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1491	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1492	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 569	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2095	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 897	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2092	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 425	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 565	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2196	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 895	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2087	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2090	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 566	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1490	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1489	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 568	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 432	United States	Cretaceous	Maastrichtian	Yes	No

Table 3. Studies of herbivory included in Pinheiro et al. (2016), continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Labandeira et al. (2002)	Hell Creek 2096	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 901	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 431	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2097	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 908	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1781	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2214	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 906	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1250	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 517	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1855	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 428	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2099	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2094	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2093	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1782	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 574	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2091	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 439	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 1854	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 2098	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 900	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 440	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 561	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Hell Creek 573	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Fort Union 2205	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Fort Union 438	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Fort Union 2100	United States	Cretaceous	Maastrichtian	Yes	No
Labandeira et al. (2002)	Fort Union 2212	United States	Cretaceous	Maastrichtian	Yes	No

Table 4. Studies of herbivory included in Pinheiro et al. (2016), continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Labandeira et al. (2002)	Fort Union 429	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 427	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2217	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2211	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2209	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2207	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2206	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 1859	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 1858	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 436	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2208	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 902	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 898	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 441	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 562	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 435	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 905	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 563	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 1848	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2200	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 2201	United States	Paleogene	Danian	Yes	No
Labandeira et al. (2002)	Fort Union 909	United States	Paleogene	Danian	Yes	No

Table 5. Studies of herbivory included in Pinheiro et al. (2016), continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Wappler and Denk (2011)	Firkanten	Norway	Paleogene	Danian–Selandian	Yes	No
Wappler and Denk (2011)	Renardodden	Norway	Paleogene	Priabonian–Rupelian	Yes	No
Wappler and Denk (2011)	Aspelintoppen	Norway	Paleogene	Selandian–Chattian	Yes	No
Currano et al. (2010)	Fort Union P3	United States	Paleogene	Thanetian	Yes	No
Currano et al. (2010)	Fort Union P2	United States	Paleogene	Thanetian	Yes	No
Currano et al. (2010)	Fort Union P1	United States	Paleogene	Thanetian	Yes	No
Currano et al. (2010)	Fort Union P4	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2010)	Willwood E1	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2010)	Willwood E2	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2010)	Willwood E3	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2010)	Willwood E4	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2010)	Willwood E5a	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Elk Creek EDC0501	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Elk Creek EDC0502	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Elk Creek EDC0503	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Elk Creek EDC0504	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Elk Creek EDC0505	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0603	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0604	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0605	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0606	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0607	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0609	United States	Paleogene	Ypresian	Yes	No
Currano (2009)	Fifteenmile Creek EDC0610	United States	Paleogene	Ypresian	Yes	No

Table 6. Studies of herbivory included in Pinheiro et al. (2016), continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Wappler et al. (2012)	Messel	Germany	Paleogene	Ypresian	Yes	No
Wappler et al. (2012)	Eckfeld	Germany	Paleogene	Ypresian	Yes	No
Currano et al. (2011)	Guang	Ethiopia	Paleogene	Chattian	Yes	No
Currano et al. (2011)	Bull's Bellow	Ethiopia	Paleogene	Chattian	Yes	No
Wappler (2010)	Stößchen	Germany	Paleogene	Chattian	Yes	No
Wappler (2010)	Rott	Germany	Paleogene	Chattian	Yes	No
Wappler (2010)	Orsberg	Germany	Paleogene	Chattian	Yes	No
Wappler (2010)	Offenkaule	Germany	Paleogene	Chattian	Yes	No
Wappler (2010)	Allrott	Germany	Paleogene	Chattian	Yes	No
Wappler (2010)	Quegstein	Germany	Paleogene	Chattian	Yes	No
Prokop et al. (2010)	Delta Sandy Horizon	Czech Republic	Neogene	Aquitanian–Burdigalian	Yes	No
Prokop et al. (2010)	Lake Clavey Horizon	Czech Republic	Neogene	Aquitanian–Burdigalian	Yes	No

Table 7. Studies of herbivory not included in Pinheiro et al. (2016), for which all leaves from an assemblage were analyzed and DT data were not collected.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Krassilov and Karasev (2008)	Sokovka	Russia	Permian–Triassic	Changhsingian–Induan	No	No
Edirisooriya and Dharmagunawardhane (2013)	Tabbowa	Sri Lanka	Jurassic	Hettangian–Toarcian	No	No
Banerji (2004)	Rajmahal Chunakhal	India	Cretaceous	NA	No	No
Banerji (2004)	Rajmahal Nipania	India	Cretaceous	NA	No	No
Banerji (2004)	Rajmahal Hiranduba	India	Cretaceous	NA	No	No
Smith (2008)	Green River	United States	Paleogene	Lutetian	No	Yes
Smith (2008)	FLFO-5	United States	Paleogene	Priabonian	No	Yes
Smith (2008)	FLFO-7	United States	Paleogene	Priabonian	No	Yes
Paik et al. (2012)	Geumgwangdong Site 1	South Korea	Neogene	Burdigalian	No	No
Paik et al. (2012)	Geumgwangdong Site 2	South Korea	Neogene	Burdigalian	No	No
Paik et al. (2012)	Geumgwangdong Site 3	South Korea	Neogene	Burdigalian	No	No
Khan et al. (2014)	Dafla	India	Neogene	Langhian–Messinian	No	Yes
Khan et al. (2014)	Subansiri	India	Neogene	Zanclean–Piacenzian	No	Yes
Khan et al. (2014)	Kimin	India	Neogene–Quaternary	Piacenzian–Gelasian	No	Yes

Table 8. Studies of herbivory not included in Pinheiro et al. (2016) for which DT data were collected for all leaves from an assemblage.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Xu et al. (2018)	Williamson Drive	United States	Pennsylvanian	Gzhelian	Yes	Yes
Cariglino (2018)	Laguna Lillo	Argentina	Permian	Artinskian	Yes	No
Schachat et al. (2015)	Mitchell Creek Flats	United States	Permian	Artinskian–Kungurian	Yes	Yes
Marchetti et al. (2015)	Le Fraine	Italy	Permian	Kungurian	Yes	No
Labandeira et al. (2016)	Tregiovo	Italy	Permian	Kungurian	Yes	No
Cariglino (2018)	Laguna Polina	Argentina	Permian	Kungurian–Wuchiapingian	Yes	No
Maccracken and Labandeira (2019)	South Ash Pasture	United States	Permian	Roadian–Wordian	Yes	Yes
Labandeira et al. (2016)	Bletterbach	Italy	Permian	Wuchiapingian	Yes	No
Bernardi et al. (2017)	Bletterbach	Italy	Permian	Wuchiapingian	Yes	No
Cariglino (2018)	Dos Hermanos	Argentina	Permian	Changhsingian	Yes	No
Kustatscher et al. (2014)	Bremke	Germany	Triassic	Olenekian	Yes	No
Kustatscher et al. (2014)	Fürstenberg	Germany	Triassic	Olenekian	Yes	No
Labandeira et al. (2016)	Agordo	Italy	Triassic	Anisian	Yes	No
Labandeira et al. (2016)	Kühwiesenkopf	Italy	Triassic	Anisian	Yes	No
Labandeira et al. (2016)	Furkelpass	Italy	Triassic	Anisian	Yes	No
Labandeira et al. (2016)	Cernerà	Italy	Triassic	Ladinian	Yes	No
Labandeira et al. (2016)	Monte Agnello	Italy	Triassic	Ladinian	Yes	No
Labandeira et al. (2016)	Forcela da Cians	Italy	Triassic	Ladinian	Yes	No
Labandeira et al. (2016)	St. Viet–Seewald	Italy	Triassic	Ladinian	Yes	No
Labandeira et al. (2016)	St. Viet–Innerkohlbach	Italy	Triassic	Ladinian	Yes	No
Labandeira et al. (2018)	Aasvoëlberg (Aas 411)	South Africa	Triassic	Carnian	Yes	No
Arens and Gleason (2016)	Soap Wash	USA	Cretaceous	Albian	Yes	Yes
Donovan et al. (2018)	Lefipán LefE	Argentina	Cretaceous	Maastrichtian	Yes	No
Donovan et al. (2018)	Lefipán LefW	Argentina	Cretaceous	Maastrichtian	Yes	No
Donovan et al. (2018)	Lefipán LefL	Argentina	Cretaceous	Maastrichtian	Yes	No
Wilf et al. (2006)	Somebody's Garden	United States	Cretaceous	Maastrichtian	Yes	No
Wilf et al. (2006)	Luten's 4H Hadrosaur	United States	Cretaceous	Maastrichtian	Yes	No

Table 9. Studies of herbivory not included in Pinheiro et al. (2016) for which DT data were collected for all leaves from an assemblage, continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Donovan et al. (2018)	Salamanca PL-1	Argentina	Paleogene	Danian	Yes	No
Donovan et al. (2018)	Salamanca PL-2	Argentina	Paleogene	Danian	Yes	No
Donovan et al. (2018)	Peñas Coloradas LF	Argentina	Paleogene	Danian	Yes	No
Donovan et al. (2016); Wilf et al. (2006)	Mexican Hat	United States	Paleogene	Danian	Yes	No
Donovan et al. (2016)	Castle Rock	United States	Paleogene	Danian	Yes	No
Wilf et al. (2006)	Castle Rock Lower layer	United States	Paleogene	Danian	Yes	No
Wilf et al. (2006)	Pyramid Butte	United States	Paleogene	Danian	Yes	No
Wilf et al. (2006)	Battleship	United States	Paleogene	Danian	Yes	No
Wilf et al. (2006)	Dean Street	United States	Paleogene	Danian	Yes	No
Wappler et al. (2009)	Menat	France	Paleogene	Selandian	Yes	No
Wilf et al. (2006)	Clarkforkian	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2006)	Lur'd Leaves	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2006)	Skeleton Coast	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2006)	Persites Paradise	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2006)	Kevin's Jerky	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2006)	Haz-Mat	United States	Paleogene	Thanetian	Yes	No
Currano et al. (2008)	USNM 42042	United States	Paleogene	Thanetian	Yes	No
Currano et al. (2008)	USNM 42041	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2001)	USNM 41270	United States	Paleogene	Thanetian	Yes	No
Wilf et al. (2006)	Sourdough	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 42395	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 42396	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 42397	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 42398	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 42399	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 42384	United States	Paleogene	Ypresian	Yes	No
Currano et al. (2008)	USNM 41643	United States	Paleogene	Ypresian	Yes	No
Wilf et al. (2001)	USNM 41300	United States	Paleogene	Ypresian	Yes	No
Wilf et al. (2001)	USNM 41342	United States	Paleogene	Ypresian	Yes	No
Wilf et al. (2001)	USNM 41352	United States	Paleogene	Ypresian	Yes	No
Wilf et al. (2001)	DMNS 323	United States	Paleogene	Ypresian	Yes	No
Wilf et al. (2001)	DMNS 1732	United States	Paleogene	Ypresian	Yes	No
Müller et al. (2017)	Luckenau Clay Complex	Germany	Paleogene	Bartonian/Priabonian	Yes	No
Domínguez (2018)	Sariñena	Spain	Paleogene	Chattian	Yes	No
Gunkel and Wappler (2015)	Enspel	Germany	Paleogene	Chattian	Yes	No
Möller et al. (2017)	Hindon Maar	New Zealand	Neogene	Aquitanian/Burdigalian	Yes	No
Knor et al. (2015)	Bílina Mine	Czech Republic	Neogene	Burdigalian	Yes	No

Table 10. Studies of herbivory not included in Pinheiro et al. (2016) for which DT data were collected for all leaves from an assemblage, continued.

Reference	Assemblage/Formation	Country	Period	Stage	DT	HI
Wappler and Grímsson (2016)	Þórishlíðarfjall	Iceland	Neogene	Langhian	Yes	No
Khan et al. (2015)	Darjeeling lower Siwalik	India	Neogene	Langhian–Serravallian	Yes	Yes
Robledo et al. (2018)	km 107	Argentina	Neogene	Serravallian	Yes	No
Robledo et al. (2018)	Río la Quenquiada	Argentina	Neogene	Serravallian	Yes	No
Wappler and Grímsson (2016)	Surtarbrandsgil	Iceland	Neogene	Serravallian	Yes	No
Wappler and Grímsson (2016)	Seljá	Iceland	Neogene	Serravallian	Yes	No
Wappler and Grímsson (2016)	Margrétarfell	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Gautshamar	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Húsavíkurkleif	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Tröllatunga	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Hólar	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Hrútagil	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Fell	Iceland	Neogene	Tortonian	Yes	No
Wappler and Grímsson (2016)	Stafholt	Iceland	Neogene	Messinian	Yes	No
Wappler and Grímsson (2016)	Laxfoss	Iceland	Neogene	Messinian	Yes	No
Wappler and Grímsson (2016)	Veiðilækur	Iceland	Neogene	Messinian	Yes	No
Wappler and Grímsson (2016)	Brekkuá	Iceland	Neogene	Messinian	Yes	No
Wappler and Grímsson (2016)	Hestabrekkur	Iceland	Neogene	Messinian	Yes	No
Wappler and Grímsson (2016)	Fífudalur	Iceland	Neogene	Messinian	Yes	No
Wappler and Grímsson (2016)	Þrimilsdalur	Iceland	Neogene	Messinian	Yes	No
Robledo et al. (2018)	Quebrada de Alfredo	Argentina	Neogene	Messinian–Zanclean	Yes	No
Robledo et al. (2018)	Quebrada del Estanque	Argentina	Neogene	Messinian–Zanclean	Yes	No
Robledo et al. (2018)	Quebrada del Horno	Argentina	Neogene	Messinian–Zanclean	Yes	No
Robledo et al. (2018)	Peñas Blancas	Argentina	Neogene	Messinian–Zanclean	Yes	No
Wappler and Grímsson (2016)	Skeifá	Iceland	Neogene	Zanclean	Yes	No
Su et al. (2015)	Longmen	China	Neogene	Piacenzian	Yes	No
Adroit et al. (2018)	Berga	Germany	Neogene	Piacenzian	Yes	No
Adroit et al. (2018)	Willershausen	Germany	Neogene	Piacenzian	Yes	No
Adroit et al. (2016)	Bernasso	France	Quaternary	Gelasian	Yes	No

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