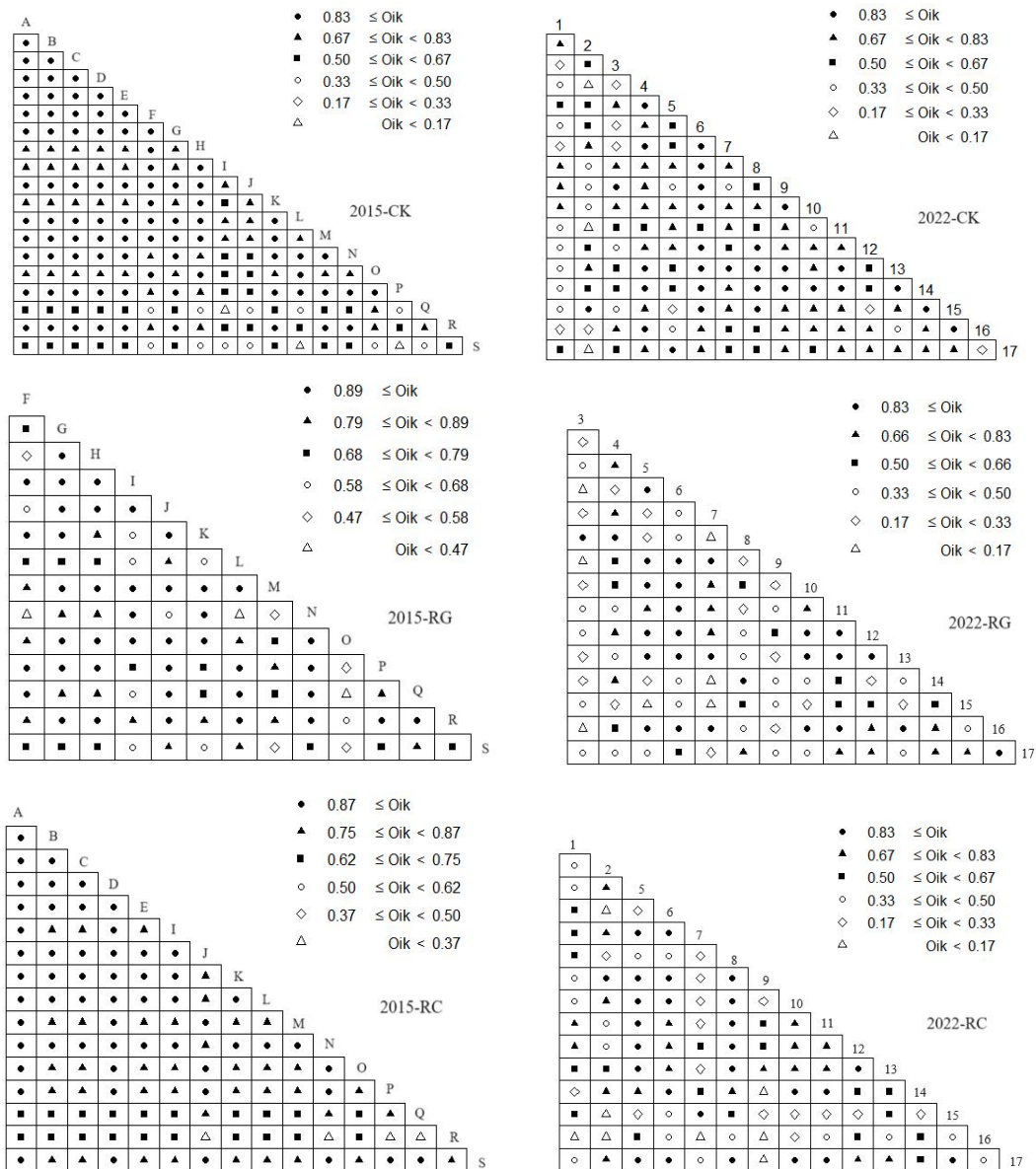


Figure S1. Niche overlap of dominant species from different PFG treatments in 2015 and 2022. A, *Stipa aliena* Keng; B, *Deschampsia cespitosa*; C, *Elymus nutans*; D, *Poa araratica*; E, *Helictotrichon tibeticum*; F, *Trichophorum distigmaticum*; G, *Carex parva*; H, *Carex alatauensis*; I, *Oxytropis arctica*; J, *Medicago ruthenica*; K, *Gueldenstaedtia verna*; L, *Saussurea pulchra*; M, *Gentiana aristata*; N, *Gentiana straminea*; O, *Thalictrum alpinum*; P, *Ranunculus pulchellus*; Q, *Potentilla nivea*; R, *Argentina anserina*; S, *Lancea tibetica*; T, *Sibbaldianthe bifurca*; 1, *Helictotrichon tibeticum*; 2, *Poa araratica*; 3, *Carex alatauensis*; 4, *Carex parva*; 5, *Oxytropis arctica*; 6, *Medicago ruthenica*; 7, *Tibetia himalaica*; 8, *Saussurea pulchra*; 9, *Gentiana aristata*; 10, *Gentiana straminea*; 11, *Thalictrum alpinum*; 12, *Ranunculus pulchellus*; 13, *Potentilla nivea*; 14, *Lancea tibetica*; 15, *Sibbaldianthe bifurca*; 16, *Taraxacum mongolicum*; 17, *Anemone obtusiloba*; 18, *Potentilla multifida*.



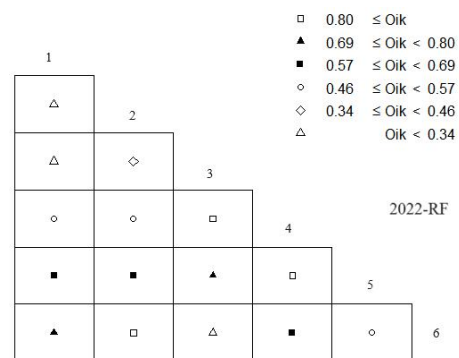
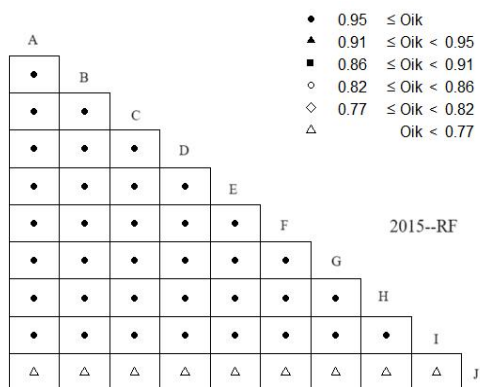
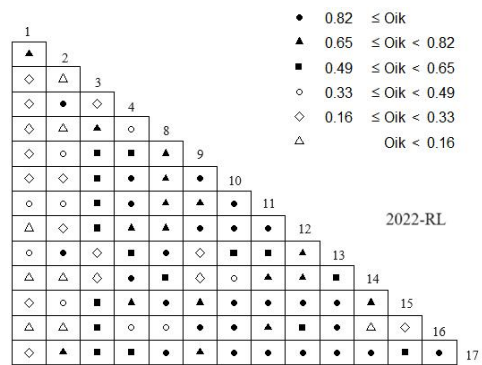
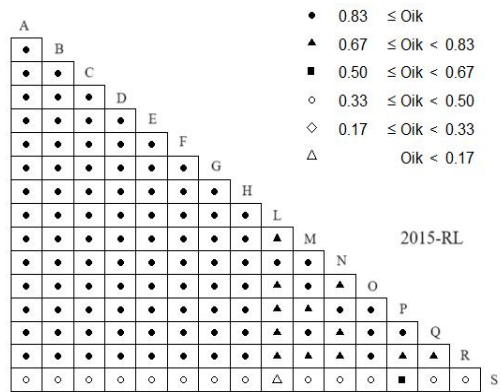
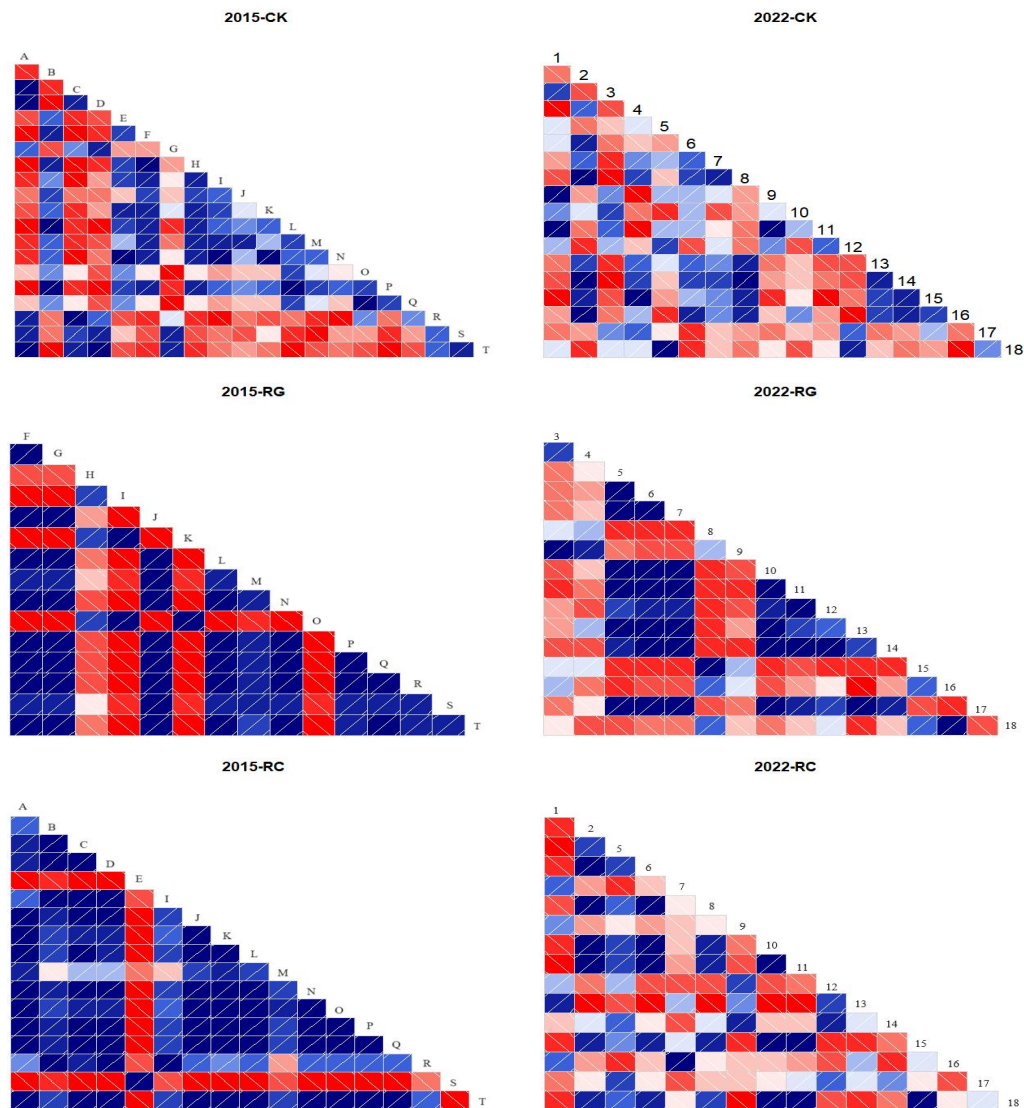
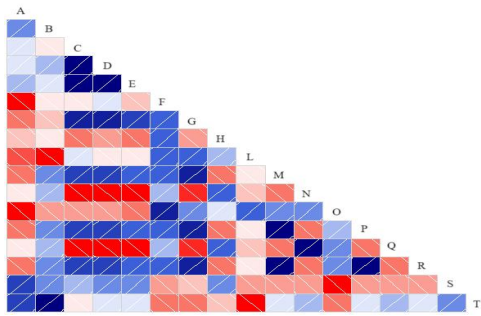


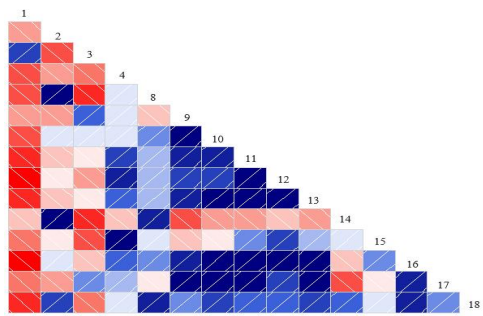
Figure S2. *P*-value matrix for chi-square test for overall connectivity of dominant species from different PFG treatments in 2015 and 2022. Blue and a slash from bottom left to top right indicate that the two variables are positively correlated, while red and a slash from top left to bottom right indicate that the variables are negatively correlated. The darker the colour, the stronger the correlation between the variables. A, *Stipa aliena* Keng; B, *Deschampsia cespitosa*; C, *Elymus nutans*; D, *Poa araratica*; E, *Helictotrichon tibeticum*; F, *Trichophorum distigmaticum*; G, *Carex parva*; H, *Carex alatauensis*; I, *Oxytropis arctica*; J, *Medicago ruthenica*; K, *Gueldenstaedtia verna*; L, *Saussurea pulchra*; M, *Gentiana aristata*; N, *Gentiana straminea*; O, *Thalictrum alpinum*; P, *Ranunculus pulchellus*; Q, *Potentilla nivea*; R, *Argentina anserina*; S, *Lancea tibetica*; T, *Sibbaldianthe bifurca*; 1, *Helictotrichon tibeticum*; 2, *Poa araratica*; 3, *Carex alatauensis*; 4, *Carex parva*; 5, *Oxytropis arctica*; 6, *Medicago ruthenica*; 7, *Tibetia himalaica*; 8, *Saussurea pulchra*; 9, *Gentiana aristata*; 10, *Gentiana straminea*; 11, *Thalictrum alpinum*; 12, *Ranunculus pulchellus*; 13, *Potentilla nivea*; 14, *Lancea tibetica*; 15, *Sibbaldianthe bifurca*; 16, *Taraxacum mongolicum*; 17, *Anemone obtusiloba*; 18, *Potentilla multifida*.



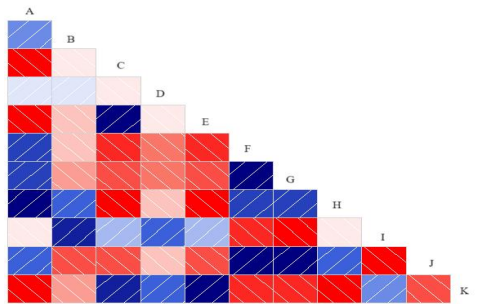
2015-RL



2022-RL



2015-RF



2022-RF

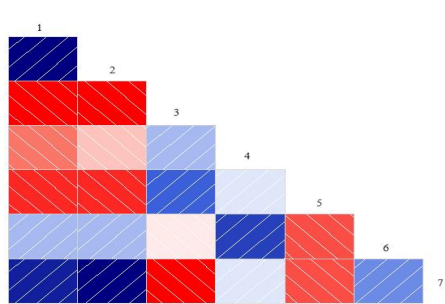
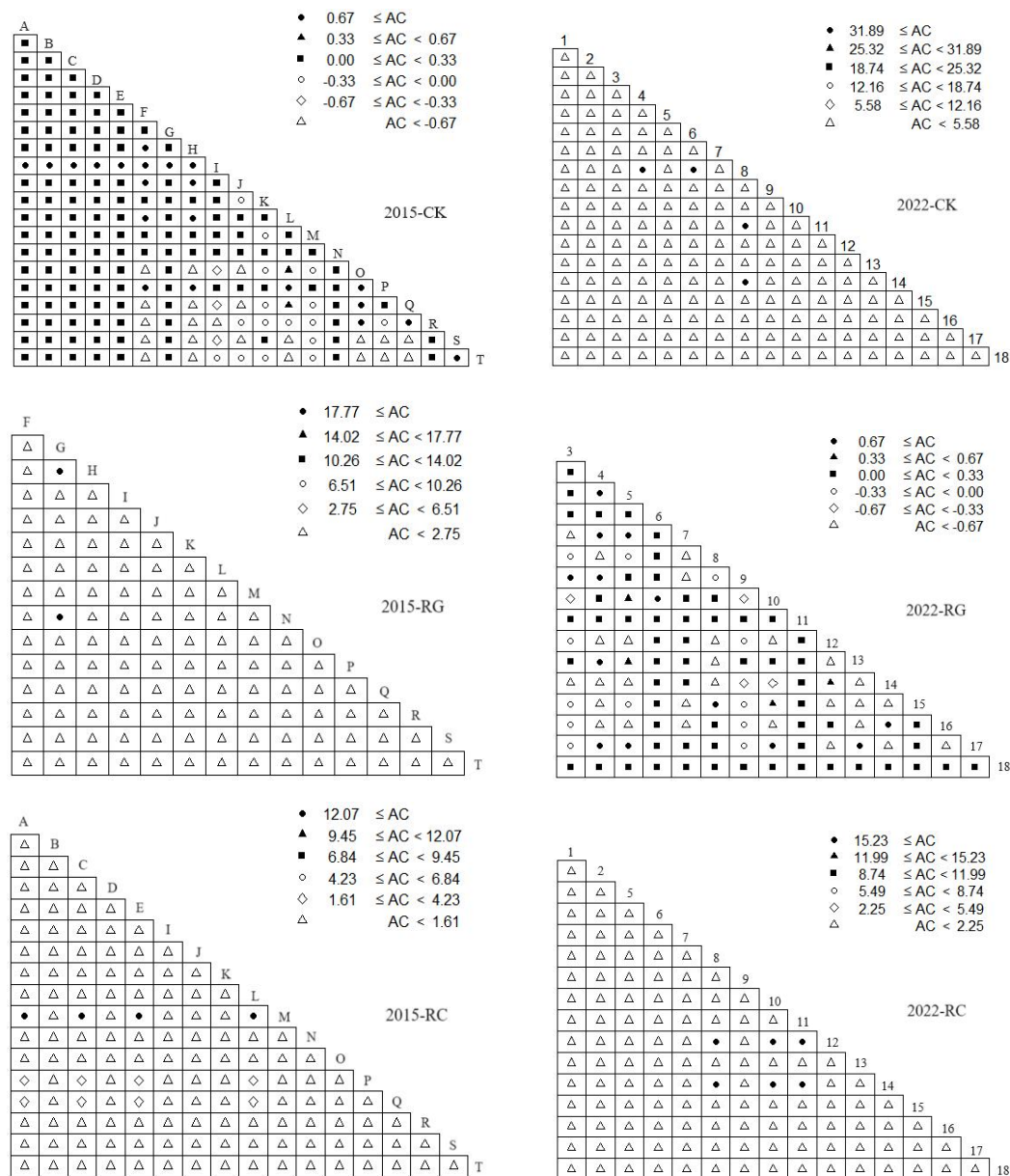


Figure S3. Linkage coefficients of dominant species within the community from different PFG treatments in 2015 and 2022. A, *Stipa aliena* Keng; B, *Deschampsia cespitosa*; C, *Elymus nutans*; D, *Poa araratica*; E, *Helictotrichon tibeticum*; F, *Trichophorum distigmaticum*; G, *Carex parva*; H, *Carex alatauensis*; I, *Oxytropis arctica*; J, *Medicago ruthenica*; K, *Gueldenstaedtia verna*; L, *Saussurea pulchra*; M, *Gentiana aristata*; N, *Gentiana straminea*; O, *Thalictrum alpinum*; P, *Ranunculus pulchellus*; Q, *Potentilla nivea*; R, *Argentina anserina*; S, *Lancea tibetica*; T, *Sibbaldianthe bifurca*; 1, *Helictotrichon tibeticum*; 2, *Poa araratica*; 3, *Carex alatauensis*; 4, *Carex parva*; 5, *Oxytropis arctica*; 6, *Medicago ruthenica*; 7, *Tibetia himalaica*; 8, *Saussurea pulchra*; 9, *Gentiana aristata*; 10, *Gentiana straminea*; 11, *Thalictrum alpinum*; 12, *Ranunculus pulchellus*; 13, *Potentilla nivea*; 14, *Lancea tibetica*; 15, *Sibbaldianthe bifurca*; 16, *Taraxacum mongolicum*; 17, *Anemone obtusiloba*; 18, *Potentilla multifida*.



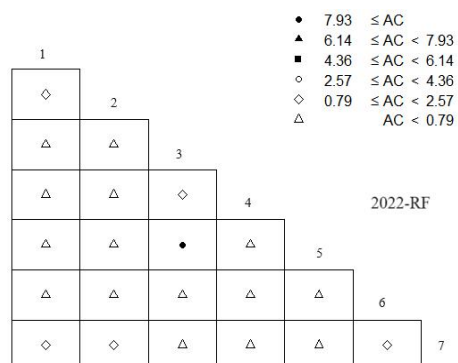
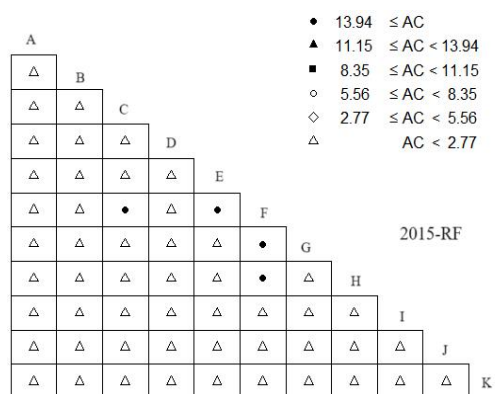
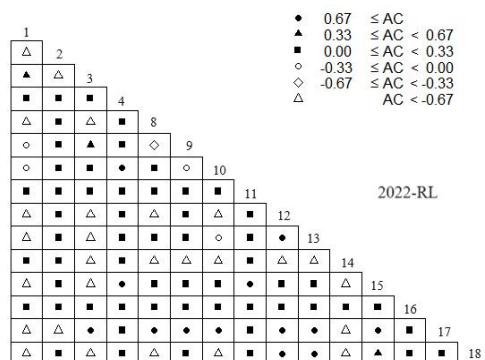
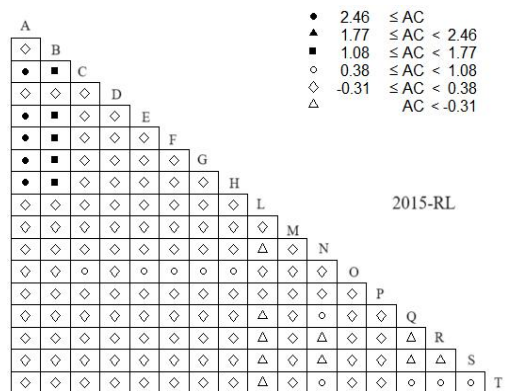


Figure S4. Semi-exponential matrix of *OI* for dominant species from different PFG treatments in 2015 and 2022. A, *Stipa aliena* Keng; B, *Deschampsia cespitosa*; C, *Elymus nutans*; D, *Poa araratica*; E, *Helictotrichon tibeticum*; F, *Trichophorum distigmaticum*; G, *Carex parva*; H, *Carex alatauensis*; I, *Oxytropis arctica*; J, *Medicago ruthenica*; K, *Gueldenstaedtia verna*; L, *Saussurea pulchra*; M, *Gentiana aristata*; N, *Gentiana straminea*; O, *Thalictrum alpinum*; P, *Ranunculus pulchellus*; Q, *Potentilla nivea*; R, *Argentina anserina*; S, *Lancea tibetica*; T, *Sibbaldianthe bifurca*; 1, *Helictotrichon tibeticum*; 2, *Poa araratica*; 3, *Carex alatauensis*; 4, *Carex parva*; 5, *Oxytropis arctica*; 6, *Medicago ruthenica*; 7, *Tibetia himalaica*; 8, *Saussurea pulchra*; 9, *Gentiana aristata*; 10, *Gentiana straminea*; 11, *Thalictrum alpinum*; 12, *Ranunculus pulchellus*; 13, *Potentilla nivea*; 14, *Lancea tibetica*; 15, *Sibbaldianthe bifurca*; 16, *Taraxacum mongolicum*; 17, *Anemone obtusiloba*; 18, *Potentilla multifida*.

