

## Supporting information for

### Assessing the effect of roads on mountain plant diversity beyond species richness

**Table S1.** Species names, species abbreviations of species whose abundance is more than 0.1% of the total species abundance.

Species	Species.abbr	GENUS	FAMILY
<i>Abies fabri</i> (Mast.) Craib	Abi.fab	Abies	Pinaceae
<i>Achudemia japonica</i> Maxim.	Ach.jap	Achudemia	Urticaceae
<i>Actaea cimicifuga</i> L.	Act.cim	Actaea	Ranunculaceae
<i>Adenophora capillaris</i> Hemsl.	Ade.cap	Adenophora	Campanulaceae
<i>Agrostis clavate</i> Trin.	Agr.cla	Agrostis	Poaceae
<i>Agrostis pilosula</i> Trin.	Agro.pil	Agrostis	Poaceae
<i>Aletris spicata</i> (Thunb.) Franch.	Ale.spi	Aletris	Nartheciaceae
<i>Anaphalis aureopunctata</i> Lingelsh. & Borza	Ana.aur	Anaphalis	Asteraceae
<i>Anaphalis nepalensis</i> (Spreng.) Hand. - Mazz.	Ana.nep	Anaphalis	Asteraceae
<i>Anemone exigua</i> Maxim.	Ane.exi	Anemone	Ranunculaceae
<i>Anemone hupehensis</i> (É.Lemoine) É.Lemoine	Ane.hup	Anemone	Ranunculaceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Anemone obtusiloba</i> D.Don	Ane.obt	Anemone	Ranunculaceae
<i>Anemone rivularis</i> Buch. -Ham. ex DC.	Ane.riv	Anemone	Ranunculaceae
<i>Artemisia argyi</i> H.Lév. & Vaniot	Art.arg	Artemisia	Asteraceae
<i>Artemisia lancea</i> Vaniot	Art.lan	Artemisia	Asteraceae
<i>Arthraxon hispidus</i> (Thunb.) Makino	Art.his	Arthraxon	Poaceae
<i>Aster ageratoides</i> Turcz.	Ast.age	Aster	Asteraceae
<i>Aster albescens</i> (DC.) Wall. ex Hand. - Mazz.	Ast.alb	Aster	Asteraceae
<i>Aster alpinus</i> L.	Ast.alp	Aster	Asteraceae
<i>Athyrium schizochlamys</i> (Ching) K. Iwats.	Ath.sch	Athyrium	Athyriaceae
<i>Beckwithia glacialis</i> (L.) Á.Löve & D.Löve	Bec.gla	Beckwithia	Ranunculaceae
<i>Boehmeria martini</i> H.Lév.	Boe.mar	Boehmeria	Urticaceae
<i>Brachypodium sylvaticum</i> (Huds.) P.Beauv.	Bra.syl	Brachypodium	Poaceae
<i>Bromus inermis</i> Leyss.	Bro.ine	Bromus	Poaceae
<i>Buddleja davidii</i> Franch.	Bud.dav	Buddleja	Scrophulariaceae
<i>Calamagrostis scabrescens</i> Griseb.	Cal.sca	Calamagrostis	Poaceae
<i>Caltha palustris</i> L.	Cal.pal	Caltha	Ranunculaceae
<i>Cardamine impatiens</i> L.	Car.imp	Cardamine	Brassicaceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Cardamine purpurascens</i> (O.E.Schulz) Al-Shehbaz & al.	Car.pur	Cardamine	Brassicaceae
<i>Carex doniana</i> Spreng.	Car.don	Carex	Cyperaceae
<i>Carex obscura</i> var. <i>brachycarpa</i> C.B.Clarke	Car.obs	Carex	Cyperaceae
<i>Carex scolopendriformis</i> F.T.Wang & Tang ex P.C.Li	Car.sco	Carex	Cyperaceae
<i>Carpesium lipskyi</i> C.Winkl.	Car.lip	Carpesium	Asteraceae
<i>Cerastium furcatum</i> Cham. & Schldl.	Cer.fur	Cerastium	Caryophyllaceae
<i>Cerastium glomeratum</i> Thuill.	Cer.glo	Cerastium	Caryophyllaceae
<i>Chrysanthemum przewalskii</i> (Poljakov) H.Ohashi & Yonek.	Chr.prz	Chrysanthemum_	Asteraceae
<i>Circaea cordata</i> Royle	Cir.cor	Circaea	Onagraceae
<i>Circaeaster agrestis</i> Maxim.	Cir.agr	Circaeaster	Circaeasteraceae
<i>Cirsium handelii</i> Petr. ex Hand. -Mazz.	Cir.han	Cirsium	Asteraceae
<i>Cirsium periacanthaceum</i> C.Shih	Cir.per	Cirsium	Asteraceae
<i>Clinopodium polycephalum</i> (Vaniot) C.Y.Wu & S.J.Hsuan	Cli.pol	Clinopodium	Lamiaceae
<i>Clinopodium repens</i> (Buch. -Ham. ex D.Don) Benth.	Cli.rep	Clinopodium	Lamiaceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Comastoma pulmonarium</i> (Turcz.) Toyok.	Com.pul	Comastoma	Gentianaceae
<i>Corydalis curviflora</i> Maxim. ex Hemsl.	Cor.cur	Corydalis	Papaveraceae
<i>Corydalis pseudobarbisepala</i> Fedde	Cor.pse	Corydalis	Papaveraceae
<i>Cyananthus hookeri</i> C.B.Clarke	Cya.hoo	Cyananthus	Campanulaceae
<i>Cyananthus macrocalyx</i> Franch.	Cya.mac	Cyananthus	Campanulaceae
<i>Dactylis glomerata</i> L.	Dac.glo	Dactylis	Poaceae
<i>Deschampsia cespitosa</i> (L.) P.Beauv.	Des.ces	Deschampsia	Poaceae
<i>Disporum longistylum</i> (H.Lév. & Vaniot) H.Hara	Dis.lon	Disporum	Colchicaceae
<i>Dryopteris transmorrisonensis</i> (Hayata) Hayata	Dry.tra	Dryopteris	Dryopteridaceae
<i>Duchesnea indica</i> (Jacks.) Focke	Duc.ind	Duchesnea	Rosaceae
<i>Elaeagnus rhamnoides</i> (L.) A.Nelson	Ela.rha	Elaeagnus	Elaeagnaceae
<i>Elatostema obtusum</i> Wedd.	Ela.obt	Elatostema	Urticaceae
<i>Elsholtzia ciliate</i> (Thunb.) Hyl.	Els.cil	Elsholtzia	Lamiaceae
<i>Elsholtzia feddei</i> H.Lév.	Els.fed	Elsholtzia	Lamiaceae
<i>Elymus nutans</i> Griseb.	Ely.nut	Elymus	Poaceae
<i>Elymus tangutorum</i> (Nevski) Hand. -Mazz.	Ely.tan	Elymus	Poaceae
<i>Epilobium hirsutum</i> L.	Epi.hir	Epilobium	Onagraceae
<i>Epilobium platystigmatosum</i> C.B.Rob.	Epi.pla	Epilobium	Onagraceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Epilobium sikkimense</i> Hausskn.	Epi.sik	Epilobium	Onagraceae
<i>Epilobium wallichianum</i> Hausskn.	Epi.wal	Epilobium	Onagraceae
<i>Eragrostis nigra</i> Nees ex Steud.	Era.nig	Eragrostis	Poaceae
<i>Euphorbia micractina</i> Boiss.	Eup.mic	Euphorbia	Euphorbiaceae
<i>Euphrasia pectinate</i> Ten.	Eup.pec	Euphrasia	Orobanchaceae
<i>Festuca fascinate</i> S.L.Lu	Fes.fas	Festuca	Poaceae
<i>Festuca leptopogon</i> Stapf	Fes.lep	Festuca	Poaceae
<i>Fragaria moupinensis</i> (Franch.) Cardot	Fra.mou	Fragaria	Rosaceae
<i>Fragaria orientalis</i> Losinsk.	Fra.ori	Fragaria	Rosaceae
<i>Fragaria pentaphylla</i> Losinsk.	Fra.pen	Fragaria	Rosaceae
<i>Galinsoga parviflora</i> Cav.	Gal.par	Galinsoga	Asteraceae
<i>Galium hoffmeisteri</i> (Klotzsch) Ehrend. & Schönb.-Tem. ex R.R.Mill	Gal.hof	Galium	Rubiaceae
<i>Galium spurium</i> L.	Gal.spu	Galium	Rubiaceae
<i>Gentiana arethusae</i> subsp. <i>delicatula</i> (C.Marquand) Halda	Gen.are	Gentiana	Gentianaceae
<i>Gentiana hexaphylla</i> Maxim. ex Kusn.	Gen.hex	Gentiana	Gentianaceae
<i>Gentianopsis paludosa</i> (Hook.f.) Ma	Gen.pal	Gentianopsis	Gentianaceae
<i>Geranium nepalense</i> Sweet	Ger.nep	Geranium	Geraniaceae
<i>Geranium pylzowianum</i> Maxim.	Ger.pyl	Geranium	Geraniaceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Geranium refractum</i> Edgew. & Hook.f.	Ger.ref	Geranium	Geraniaceae
<i>Geum aleppicum</i> Jacq.	Geu.ale	Geum	Rosaceae
<i>Halenia elliptica</i> D.Don	Hal.ell	Halenia	Gentianaceae
<i>Hedysarum sikkimense</i> Baker	Hed.sik	Hedysarum	Fabaceae
<i>Hydrangea strigosa</i> Rehder	Hyd.str	Hydrangea	Hydrangeaceae
<i>Impatiens quadriloba</i> K.M.Liu & Y.L.Xiang	Imp.qua	Impatiens	Balsaminaceae
<i>Impatiens undulata</i> Y.L. Chen & Y.Q. Lu	Imp.und	Impatiens	Balsaminaceae
<i>Isolepis setacea</i> (L.) R.Br.	Iso.set	Isolepis	Cyperaceae
<i>Juncus allioides</i> Franch.	Jun.all	Juncus	Juncaceae
<i>Juncus prismatocarpus</i> R.Br.	Jun.pri	Juncus	Juncaceae
<i>Laportea bulbifera</i> (Siebold & Zucc.) Wedd.	Lap.bul	Laportea	Urticaceae
<i>Leontopodium calocephalum</i> (Franch.) Beauverd	Leo.cal	Leontopodium	Asteraceae
<i>Leontopodium wilsonii</i> Beauverd	Leo.wil	Leontopodium	Asteraceae
<i>Ligularia fischeri</i> (Ledeb.) Turcz.	Lig.fis	Ligularia	Asteraceae
<i>Ligularia nelumbifolia</i> (Bureau & Franch.) Hand. -Mazz.	Lig.nel	Ligularia	Asteraceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Ligularia sagitta</i> (Maxim.) Mattf. ex Rehder & Kobuski	Lig.sag	Ligularia	Asteraceae
<i>Ligusticum hispidum</i> (Franch.) H. Wolff ex Hand. -Mazz.	Lig.his	Ligusticum	Apiaceae
<i>Lilium duchartrei</i> Franch.	Lil.duc	Lilium	Liliaceae
<i>Lolium perenne</i> L.	Lol.per	Lolium	Poaceae
<i>Lomatogonium carinthiacum</i> (Wulfen) A.Braun	Lom.car	Lomatogonium	Gentianaceae
<i>Lotus corniculatus</i> L.	Lot.cor	Lotus	Fabaceae
<i>Matteuccia struthiopteris</i> (L.) Tod.	Mat.str	Matteuccia	Onocleaceae
<i>Medicago lupulina</i> L.	Med.lup	Medicago	Fabaceae
<i>Medicago polymorpha</i> L.	Med.pol	Medicago	Fabaceae
<i>Medicago sativa</i> L.	Med.sat	Medicago	Fabaceae
<i>Microula involucriformis</i> W.T. Wang	Mic.inv	Microula	Boraginaceae
<i>Muhlenbergia japonica</i> Steud.	Muh.jap	Muhlenbergia	Poaceae
<i>Nabalus tatarinowii</i> (Maxim.) Nakai	Nab.tat	Nabalus	Asteraceae
<i>Notopterygium franchetii</i> H.Boissieu	Not.fra	Notopterygium	Apiaceae
<i>Ophiopogon bodinieri</i> H.Lév.	Oph.bod	Ophiopogon	Asparagaceae
<i>Oxalis griffithii</i> Edgew. & Hook. f.	Oxa.gri	Oxalis	Oxalidaceae
<i>Parasenecio latipes</i> (Franch.) Y.L.Chen	Par.lat	Parasenecio	Asteraceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Parasenecio palmatisectus</i> (Jeffrey) Y.L.Chen	Par.pal	Parasenecio	Asteraceae
<i>Parasenecio roborowskii</i> (Maxim.) Y.L.Chen	Par.rob	Parasenecio	Asteraceae
<i>Parathelypteris glanduligera</i> (Kunze) Ching	Par.gla	Parathelypteris	Thelypteridaceae
<i>Parnassia brevistyla</i> (Brieger) Hand. - Mazz.	Par.bre	Parnassia	Celastraceae
<i>Pedicularis davidii</i> Franch.	Ped.dav	Pedicularis	Orobanchaceae
<i>Pedicularis torta</i> Maxim.	Ped.tor	Pedicularis	Orobanchaceae
<i>Persicaria nepalensis</i> (Meisn.) Miyabe	Per.nep	Persicaria	Polygonaceae
<i>Persicaria vivipara</i> (L.) Ronse Decr.	Per.viv	Persicaria	Polygonaceae
<i>Petasites tricholobus</i> Franch.	Pet.tri	Petasites	Asteraceae
<i>Phleum alpinum</i> L.	Phl.alp	Phleum	Poaceae
<i>Picris hieracioides</i> Sibth. & Sm.	Pic.hie	Picris	Asteraceae
<i>Pilea pumila</i> (L.) A. Gray	Pil.pum	Pilea	Urticaceae
<i>Pimpinella rhomboidei</i> Diels	Pim.rho	Pimpinella	Apiaceae
<i>Plantago asiatica</i> L.	Pla.asi	Plantago	Plantaginaceae
<i>Poa infirma</i> Kunth	Poa.inf	Poa	Poaceae
<i>Poa nemoralis</i> L.	Poa.nem	Poa	Poaceae



<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Poa szechuensis</i> Rendle	Poa.sze	Poa	Poaceae
<i>Polygonatum curvistylum</i> Hua	Pol.cur	Polygonatum	Asparagaceae
<i>Polygonum cyanandrum</i> Diels	Pol.cya	Polygonum	Polygonaceae
<i>Polygonum sparsipilosum</i> A.J.Li	Pol.spa	Polygonum	Polygonaceae
<i>Potentilla anserina</i> L.	Pot.ans	Potentilla	Rosaceae
<i>Potentilla leuconota</i> D.Don	Pot.leu	Potentilla	Rosaceae
<i>Potentilla potaninii</i> Th.Wolf	Pot.pot	Potentilla	Rosaceae
<i>Primula deflexa</i> Duthie	Pri.def	Primula	Primulaceae
<i>Primula optata</i> Farrer	Pri.opt	Primula	Primulaceae
<i>Primula palmata</i> Hand. -Mazz.	Pri.pal	Primula	Primulaceae
<i>Primula sikkimensis</i> Hook.	Pri.sik	Primula	Primulaceae
<i>Prunella vulgaris</i> L.	Pru.vul	Prunella	Lamiaceae
<i>Ranunculus brotherusii</i> var. <i>tanguticus</i> (Maxim.) Tamura	Ran.bro	Ranunculus	Ranunculaceae
<i>Ranunculus japonicus</i> Thunb.	Ran.jap	Ranunculus	Ranunculaceae
<i>Rhodiola kirilowii</i> (Regel) Maxim.	Rho.kir	Rhodiola	Crassulaceae
<i>Rodgersia aesculifolia</i> Batalin	Rod.aes	Rodgersia	Saxifragaceae
<i>Rubus fockeanus</i> Kurz	Rub.foc	Rubus	Rosaceae
<i>Rubus lasiostylus</i> Focke	Rub.las	Rubus	Rosaceae
<i>Rubus mesogaeus</i> Focke	Rub.mes	Rubus	Rosaceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Rubus xanthocarpus</i> Bureau & Franch.	Rub.xan	Rubus	Rosaceae
<i>Rumex acetosa</i> L.	Rum.ace	Rumex	Polygonaceae
<i>Rumex dentatus</i> L.	Rum.den	Rumex	Polygonaceae
<i>Salix erioclada</i> H. Lév. & Vaniot	Sal.eri	Salix	Salicaceae
<i>Salvia przewalskii</i> Maxim.	Sal.prz	Salvia	Lamiaceae
<i>Saussurea leontodontoides</i> (DC.) Sch.Bip.	Sau.leo	Saussurea	Asteraceae
<i>Saussurea salicifolia</i> (L.) DC.	Sau.sal	Saussurea	Asteraceae
<i>Saussurea tatsienensis</i> Bureau & Franch.	Sau.tat	Saussurea	Asteraceae
<i>Saussurea woodiana</i> Hemsl.	Sau.woo	Saussurea	Asteraceae
<i>Saxifraga egregia</i> Engl.	Sax.egr	Saxifraga	Saxifragaceae
<i>Saxifraga stellariifolia</i> Franch.	Sax.ste	Saxifraga	Saxifragaceae
<i>Sedum rosei</i> Raym. -Hamet	Sed.ros	Sedum	Crassulaceae
<i>Sedum wenchuanense</i> S.H. Fu	Sed.wen	Sedum	Crassulaceae
<i>Selaginella braunii</i> Baker	Sel.bra	Selaginella	Selaginellaceae
<i>Sinacalia davidii</i> (Franch.) H.Koyama	Sin.dav	Sinacalia	Asteraceae
<i>Sinacalia tangutica</i> (Maxim.) B.Nord.	Sin.tan	Sinacalia	Asteraceae
<i>Smilax stans</i> Maxim.	Smi.sta	Smilax	Smilacaceae
<i>Stellaria decumbens</i> Edgew.	Ste.dec	Stellaria	Caryophyllaceae
<i>Stellaria media</i> (L.) Vill.	Ste.med	Stellaria	Caryophyllaceae
<i>Taraxacum mongolicum</i> Hand. -Mazz.	Tar.mon	Taraxacum	Asteraceae

<b>Species</b>	<b>Species.abbr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Tibetia himalaica</i> (Baker) H.P.Tsui	Tib.him	Tibetia	Fabaceae
<i>Torilis scabra</i> (Thunb.) DC.	Tor.sca	Torilis	Apiaceae
<i>Trifolium repens</i> L.	Tri.rep	Trifolium	Fabaceae
<i>Triplostegia glandulifera</i> Wall. ex DC.	Tri.gla	Triplostegia	Caprifoliaceae
<i>Trisetum clarkei</i> (Hook.f.) R.R.Stewart	Tri.cla	Trisetum	Poaceae
<i>Trollius buddae</i> Schipcz.	Tro.bud	Trollius	Ranunculaceae
<i>Urtica thunbergiana</i> Siebold & Zucc.	Urt.thu	Urtica	Urticaceae
<i>Valeriana jatamansi</i> Jones	Val.jat	Valeriana	Caprifoliaceae
<i>Veronica szechuanica</i> Batalin	Ver.sze	Veronica	Plantaginaceae
<i>Vicia cracca</i> L.	Vic.cra	Vicia	Fabaceae
<i>Vicia unijuga</i> A.Br.	Vic.uni	Vicia	Fabaceae
<i>Viola szetschwanensis</i> W. Becker & H. Boissieu	Vio.sze	Viola	Violaceae

**Table S2.** Species names, species abbreviations of species whose abundance is less than 0.001% of the total species abundance.

<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Acer pectinatum</i> subsp. <i>laxiflorum</i> (Pax) A.E.Murray	Ace.lax	Acer	Sapindaceae
<i>Acer pictum</i> Thunb.	Ace.mon	Acer	Sapindaceae
<i>Acer sterculiaceum</i> Wall.	Ace.ste	Acer	Sapindaceae
<i>Aconitum hemsleyanum</i> E.Pritz.	Aco.hem	Aconitum	Ranunculaceae
<i>Ainsliaea latifolia</i> (D. Don) Sch.Bip.	Ain.lat	Ainsliaea	Asteraceae
<i>Ajuga ciliata</i> Bunge	Aju.cil	Ajuga	Lamiaceae
<i>Alangium chinense</i> (Lour.) Harms	Ala.chi	Alangium	Cornaceae
<i>Aletris laxiflora</i> Bureau & Franch.	Ale.lax	Aletris	Nartheciaceae
<i>Ampelopsis glandulosa</i> (Wall.) Momy.	Amp.gla	Ampelopsis	Vitaceae
<i>Artemisia annua</i> L.	Art.ann	Artemisia	Asteraceae
<i>Athyrium mackinnonii</i> (C. Hope) C. Chr.	Ath.mac	Athyrium	Athyriaceae
<i>Athyrium wangii</i> Ching	Ath.wan	Athyrium	Athyriaceae
<i>Bauhinia corymbosa</i> Roxb.	Bau.cor	Bauhinia	Fabaceae

<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Begonia grandis subsp. sinensis</i> (A.DC.) Irmsch.	Beg.sin	Begonia	Begoniaceae
<i>Berberis multiovula</i> T.S.Ying	Ber.mul	Berberis	Berberidaceae
<i>Boschniakia himalaica</i> Hook.f. & Thomson	Bos.him	Boschniakia	Orobanchaceae
<i>Brassica rapa</i> L.	Bra.chi	Brassica	Brassicaceae
<i>Bromus pectinatus</i> Thunb.	Bro.pec	Bromus	Poaceae
<i>Carduus nutans</i> L.	Car.nut	Carduus	Asteraceae
<i>Carex alopecuroides</i> D.Don ex Tilloch & Taylor	Car.alo	Carex	Cyperaceae
<i>Carex atrofusca subsp. minor</i> (Boott) T.Koyama	Car.min	Carex	Cyperaceae
<i>Carex pumila</i> Thunb.	Car.pum	Carex	Cyperaceae
<i>Catolobus pendulus</i> (L.) Al- Shehbaz	Cat.pen	Catolobus	Brassicaceae
<i>Chamabainia cuspidate</i> Wight	Cha.cus	Chamabainia	Urticaceae
<i>Clematis urophylla</i> Franch.	Cle.uro	Clematis	Ranunculaceae
<i>Cornus controversa</i> Hemsl.	Cor.con	Cornus	Cornaceae
<i>Cornus schindleri</i> Wangerin	Cor.sch	Cornus	Cornaceae
<i>Corydalis davidii</i> Franch.	Cor.dav	Corydalis	Papaveraceae

<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Cuscuta reflexa</i> Roxb.	Cus.ref	Cuscuta	Convolvulaceae
<i>Cyclogramma flexilis</i> (Christ) Tagawa	Cyc.fle	Cyclogramma	Thelypteridaceae
<i>Cynanchum bungei</i> Decne.	Cyn.bun	Cynanchum	Apocynaceae
<i>Cynanchum otophyllum</i> C.K.Schneid.	Cyn.oto	Cynanchum	Apocynaceae
<i>Cypripedium tibeticum</i> King ex Rolfe	Cyp.tib	Cypripedium	Orchidaceae
<i>Davidia involucrata</i> Baill.	Dav.inv	Davidia	Nyssaceae
<i>Decaisnea insignis</i> (Griff.) Hook.f. & Thomson	Dec.ins	Decaisnea	Lardizabalaceae
<i>Delphinium trichophorum</i> Franch.	Del.tri	Delphinium	Ranunculaceae
<i>Dendropanax proteus</i> (Champ. ex Benth.) Benth.	Den.pro	Dendropanax	Araliaceae
<i>Dennstaedtia wilfordii</i> (T. Moore) Christ	Den.wil	Dennstaedtia	Dennstaedtiaceae
<i>Deutzia pilosa</i> Rehder	Deu.pil	Deutzia	Hydrangeaceae
<i>Draba subamplexicaulis</i> C.A.Mey.	Dra.sub	Draba	Brassicaceae
<i>Dryopteris barbigera</i> (T. Moore ex Hook.) Kuntze	Dry.bar	Dryopteris	Dryopteridaceae

<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Duhaldea cappa</i> (Buch. -Ham. ex D.Don) Pruski & Anderb.	Duh.cap	Duhaldea	Asteraceae
<i>Elaeagnus lanceolata</i> Warb.	Ela.lan	Elaeagnus	Elaeagnaceae
<i>Eleutherococcus giraldii</i> (Harms) Nakai	Ele.gir	Eleutherococcus	Araliaceae
<i>Eleutherococcus henryi</i> Oliv.	Ele.hen	Eleutherococcus	Araliaceae
<i>Eleutherococcus leucorrhizus</i> Oliv.	Ele.leu	Eleutherococcus	Araliaceae
<i>Eremochloa ciliaris</i> (L.) Merr.	Ere.cil	Eremochloa	Poaceae
<i>Euonymus hamiltonianus</i> Wall.	Euo.ham	Euonymus	Celastraceae
<i>Eupatorium chinense</i> L.	Eup.chi	Eupatorium	Asteraceae
<i>Eupatorium fortunei</i> Turcz.	Eup.for	Eupatorium	Asteraceae
<i>Fargesia nitida</i> (Mitford) Keng f. ex T.P.Yi	Far.nit	Fargesia	Poaceae
<i>Ficus tikoua</i> Bureau	Fic.tik	Ficus	Moraceae
<i>Gagea serotina</i> (L.) Ker Gawl.	Gag.ser	Gagea	Liliaceae
<i>Gentiana nanobella</i> C.Marquand	Gen.nan	Gentiana	Gentianaceae
<i>Gentiana straminea</i> Maxim.	Gen.str	Gentiana	Gentianaceae
<i>Gentiana suborbisepala</i> C.Marquand	Gen.sub	Gentiana	Gentianaceae
<i>Ginkgo biloba</i> L.	Gin.bil	Ginkgo	Ginkgoaceae

<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Gymnocarpium jessoense</i> (Koidz.) Koidz.	Gym.jes	Gymnocarpium	Cystopteridaceae
<i>Iris tectorum</i> Maxim.	Iri.tec	Iris	Iridaceae
<i>Juniperus saltuaria</i> Rehder & E.H.Wilson	Jun.sal	Juniperus	Cupressaceae
<i>Leycesteria formosa</i> Wall.	Ley.for	Leycesteria	Caprifoliaceae
<i>Ligustrum lucidum</i> W.T.Aiton	Lig.luc	Ligustrum	Oleaceae
<i>Lonicera rupicola</i> Hook. f. & Thomson	Lon.rup	Lonicera	Caprifoliaceae
<i>Malus pumila</i> Mill.	Mal.pum	Malus	Rosaceae
<i>Osmunda japonica</i> Thunb.	Osm.jap	Osmunda	Osmundaceae
<i>Panax japonicus</i> (T.Nees) C.A.Mey.	Pan.jap	Panax	Araliaceae
<i>Parasenecio profundorum</i> (Dunn) Y.L.Chen	Par.pro	Parasenecio	Asteraceae
<i>Paris polyphylla</i> Sm.	Par.pol	Paris	Melanthiaceae
<i>Peucedanum turgeniifolium</i> H. Wolff	Peu.tur	Peucedanum	Apiaceae
<i>Phytolacca acinosa</i> Roxb.	Phy.aci	Phytolacca	Phytolaccaceae
<i>Pinus thunbergii</i> Parl.	Pin.thu	Pinus	Pinaceae



<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Polystichum makinoi</i> (Tagawa) Tagawa	Pol.mak	Polystichum	Dryopteridaceae
<i>Potentilla fruticosa</i> L.	Pot.fru	Potentilla	Rosaceae
<i>Rhodiola fastigiata</i> (Hook. f. & Thomson) S.H. Fu	Rho.fas	Rhodiola	Crassulaceae
<i>Rhododendron decorum</i> Franch.	Rho.dec	Rhododendron	Ericaceae
<i>Rhododendron faberi subsp. prattii</i> (Franch.) D.F. Chamb.	Rho.pra	Rhododendron	Ericaceae
<i>Rhododendron przewalskii</i> Maxim.	Rho.prz	Rhododendron	Ericaceae
<i>Rosa sericea</i> Wall. ex Lindl.	Ros.ser	Rosa	Rosaceae
<i>Rubia magna</i> P.G.Xiao	Rub.mag	Rubia	Rubiaceae
<i>Rubus biflorus</i> Buch. -Ham. ex Sm.	Rub.bif	Rubus	Rosaceae
<i>Rubus playfairianus</i> Hemsl. ex Focke	Rub.pla	Rubus	Rosaceae
<i>Salix hylonoma</i> C.K. Schneid.	Sal.hyl	Salix	Salicaceae
<i>Satyrium nepalense var. ciliatum</i> (Lindl.) Hook.f.	Sat.cil	Satyrium	Orchidaceae
<i>Schizopepon dioicus</i> Cogn. ex Oliv.	Sch.dio	Schizopepon	Cucurbitaceae
<i>Selaginella vardei</i> H. Lév.	Sel.var	Selaginella	Selaginellaceae

<b>Species</b>	<b>Species.abrr</b>	<b>GENUS</b>	<b>FAMILY</b>
<i>Sibiraea angustata</i> (Rehder) Hand. -Mazz.	Sib.ang	Sibiraea	Rosaceae
<i>Solanum americanum</i> Mill.	Sol.ame	Solanum	Solanaceae
<i>Sonchus oleraceus</i> (L.) L.	Son.ole	Sonchus	Asteraceae
<i>Sorbus prattii</i> Koehne	Sor.pra	Sorbus	Rosaceae
<i>Spiraea henryi</i> Hemsl.	Spi.hen	Spiraea	Rosaceae
<i>Spiraea longigemmis</i> Maxim.	Spi.lon	Spiraea	Rosaceae
<i>Stellaria alaschanica</i> Y.Z. Zhao	Ste.ala	Stellaria	Caryophyllaceae
<i>Stellaria umbellata</i> Turcz.	Ste.umb	Stellaria	Caryophyllaceae
<i>Swertia nervosa</i> (Wall. ex G. Don) C.B. Clarke	Swe.ner	Swertia	Gentianaceae
<i>Thalictrum rostellatum</i> Hook. f. & Thomson	Tha.ros	Thalictrum	Ranunculaceae
<i>Tofieldia thibetica</i> Franch.	Tof.thi	Tofieldia	Tofieldiaceae
<i>Youngia japonica</i> (L.) DC.	You.jap	Youngia	Asteraceae
<i>Zanthoxylum armatum</i> DC.	Zan.arm	Zanthoxylum	Rutaceae

**Table S3.** Functional traits of plant species and data sources (Flora of China, TRY, measured in the field).

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Habit (Fl. China)

annual/biennial, herbaceous perennial, semi-shrub, shrub, tree, vine, or parasitic

Root System (Fl. China)

Tap or fibrous

Leaves (Fl. China)

Texture: membranous, coriaceous, papery, or fleshy

Nitrogen Fixation (TRY, Fl. China)

yes, no

Shade Tolerance (TRY, Fl. China)

Tolerant or intolerant

Heliophile (TRY, Fl. China)

yes, no

Leaf Dry Matter Content (Measured)

numerical data: mg

Special Leaf Area (Measured)

numerical data: m<sup>2</sup>/kg

Leaf Thickness (Measured)

numerical data: mm

Principal Reproductive Mode (Fl. China)

vegetative or seed

Initiation of Flowering (Fl. China)

month

Seed Dispersal (TRY, Fl. China)

gravity, wind, or animal

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**Table S4.** Parameter estimates and standard errors from best-fit or averaged linear mixed models on the effects of road and elevation on plant diversity indices (n=76 plots). Random factors: Road (2 levels) and Site (38 levels). SE: Standard Error; SD: Standard Deviation. Note: \*\*\* P<0.001; \*\* P< 0.01; \* P< 0.05.

<b>Taxonomic diversity for <math>q=0</math></b>			
<b>Random effects</b>	<b>1 Road/Site (SD=0.1221)</b>		
<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.198	0.126	1.569
Plot category	-0.143	0.028	-5.106***
Elevation	-0.375	0.907	-0.414
Elevation <sup>2</sup>	3.177	1.898	1.674
Elevation*Elevation <sup>2</sup>	-2.607	1.181	-2.207*

<b>Taxonomic diversity for <math>q=1</math></b>			
<b>Random effects</b>	<b>1 Road/Site (SD = 0.1633)</b>		
<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.353	0.065	5.433***
Plot category	-0.202	0.037	-5.394***
Elevation	0.274	0.091	3.009**

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**Taxonomic diversity for  $q=2$** 

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**Random effects****1|Road/Site (SD = 0.1691)**

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<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.381	0.070	5.425***
Plot category	-0.206	0.039	-5.304***
Elevation	0.208	0.099	2.093*

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**Functional diversity for  $q=0$** 

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**Random effects****1|Road/Site (SD = 0.1239)**

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<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.226	0.125	1.807
Plot category	-0.146	0.028	-5.128***
Elevation	-0.575	0.896	-0.642
Elevation <sup>2</sup>	3.470	1.870	1.856
Elevation*Elevation <sup>2</sup>	-2.770	1.162	-2.384*

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**Functional diversity for  $q=1$** 

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**Random effects****1|Road/Site (SD = 0.1646)**

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<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.381	0.126	3.018**

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Plot category	-0.215	0.038	-5.696***
Elevation	-0.473	0.906	-0.523
Elevation <sup>2</sup>	2.409	1.896	1.271
Elevation*Elevation <sup>2</sup>	-1.851	1.179	-1.569

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**Functional diversity for  $q=2$**

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**Random**

1|Road/Site (SD = 0.1626)

**effects**

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<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.359	0.061	5.871***
Plot category	-0.207	0.037	-5.556***
Elevation	0.219	0.087	2.522**

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**Phylogenetic diversity for  $q=0$**

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**Random**

1|Road/Site (SD = 0.160)

**effects**

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<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.381	0.090	4.219***
Plot category	-0.245	0.037	-6.682***
Elevation	0.941	0.376	2.503*
Elevation <sup>2</sup>	-0.842	0.340	-2.479*

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**Phylogenetic diversity for  $q=1$**

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<b>Random effects</b>	<b>1 Road/Site (SD = 0.127)</b>		
<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.624	0.051	12.249***
Plot category	-0.364	0.069	-5.301***
Elevation	-0.213	0.076	-2.806**
Elevation*Plot category	0.232	0.103	2.243*

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**Phylogenetic diversity for  $q=2$**

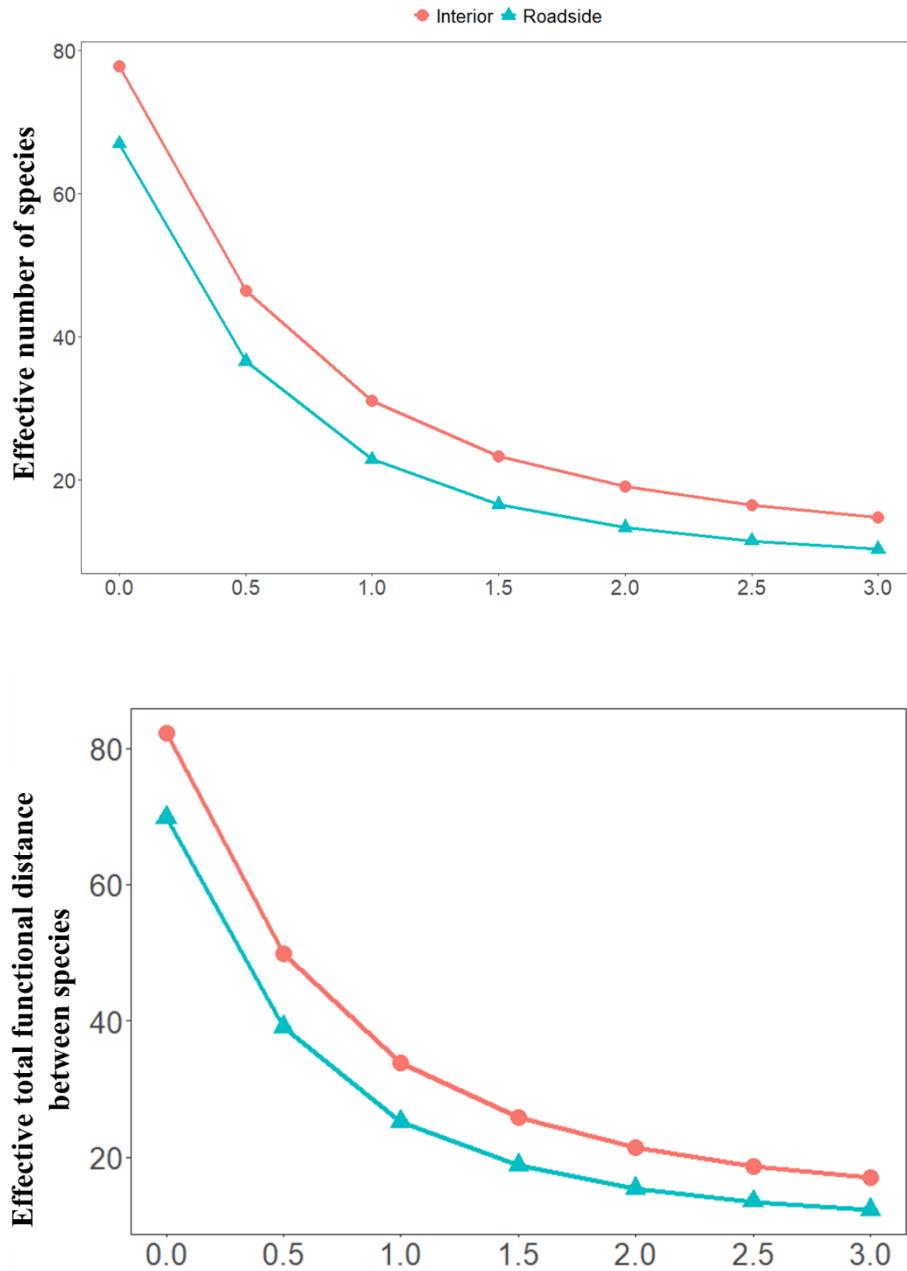
---

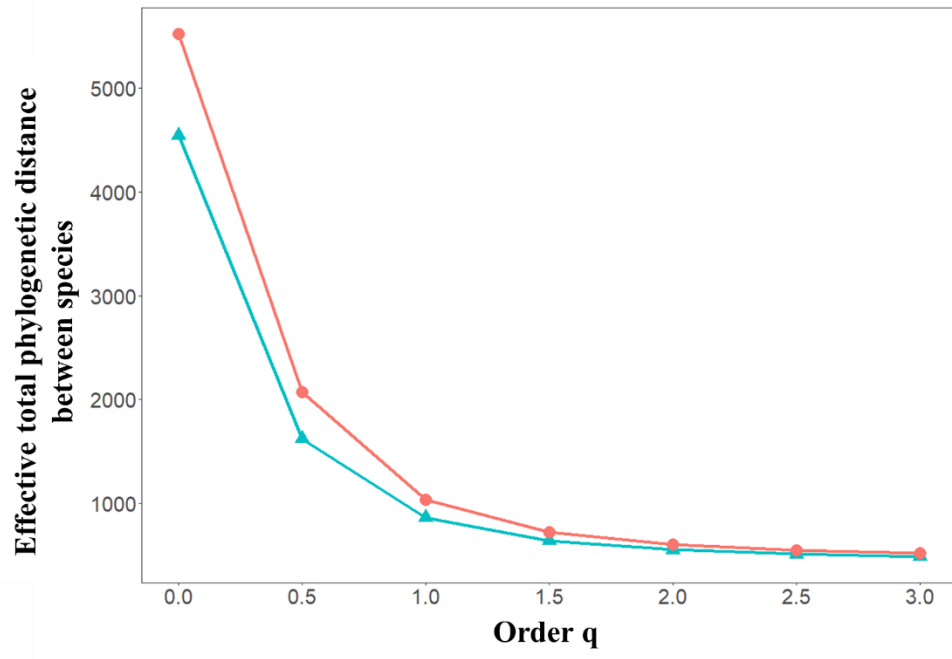
<b>Random effects</b>	<b>1 Road/Site (SD = 0.103)</b>		
<b>Fixed effects</b>	<b>Estimate</b>	<b>SE</b>	<b>t-Value</b>
(Intercept)	0.530	0.057	9.287***
Plot category	-0.311	0.056	-5.563***
Elevation	-0.735	0.213	-3.455**
Elevation <sup>2</sup>	0.384	0.186	2.057*
Elevation*Plot category	0.311	0.084	3.701***

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**Figure S1.** The Hill number-based diversity of vascular plants at two plant communities for increasing order  $q$  values (0 to 3): (a) taxonomic level; (b) functional level; and (c) phylogenetic level.





**Figure S2.** Pearson correlations between taxonomic, functional and phylogenetic Hill numbers, for  $q = [0, 1, 2]$ .

