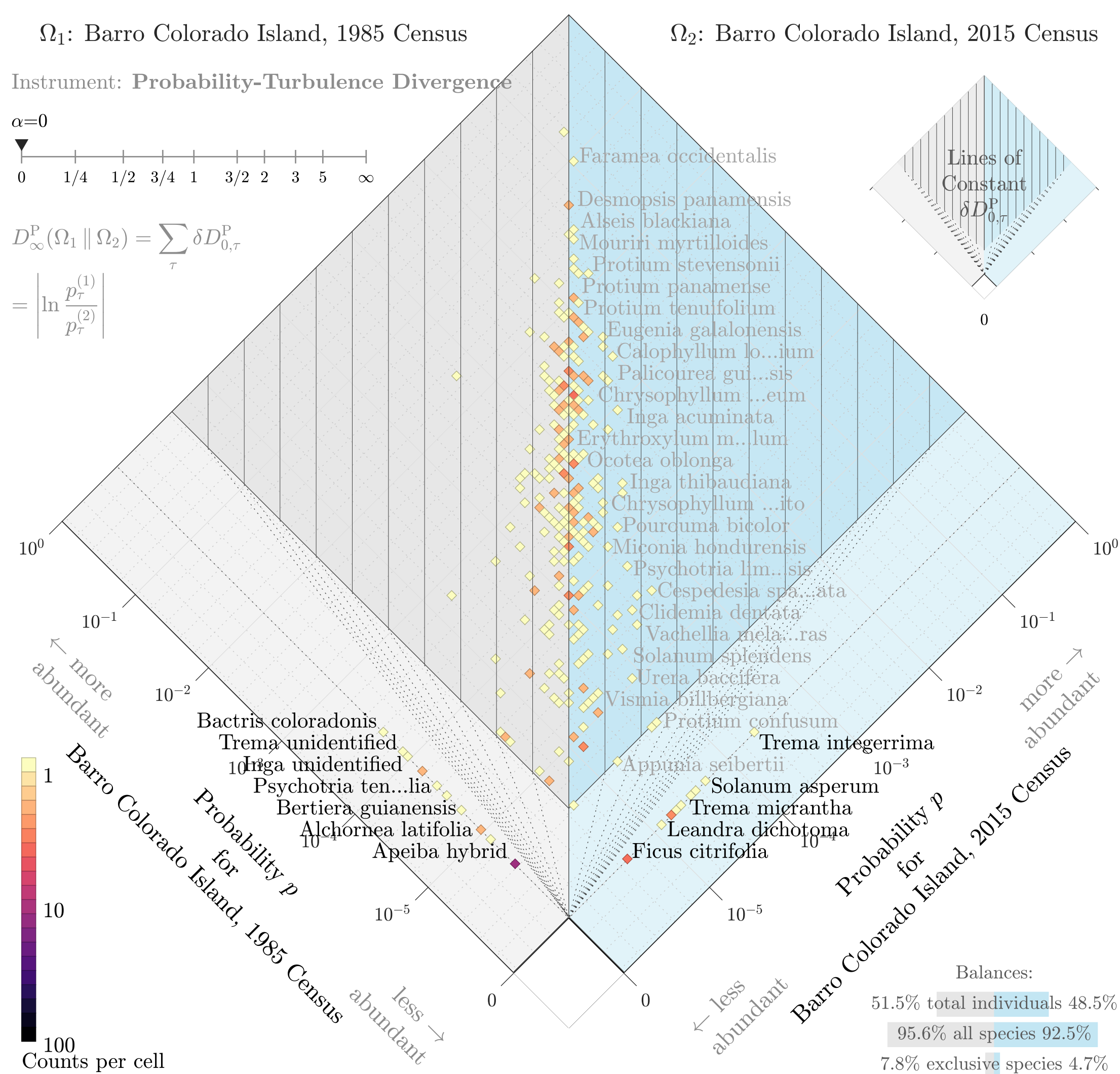


$$D_{\infty}^{\text{P}}(\Omega_1 \parallel \Omega_2) = \sum_{\tau} \delta D_{0,\tau}^{\text{P}} \\ = \left| \ln \frac{p_{\tau}^{(1)}}{p_{\tau}^{(2)}} \right|$$

Divergence contribution $\delta D_{0,\tau}^{\text{P}}(\%)$ 

Balances:

51.5% total individuals 48.5%

95.6% all species 92.5%

7.8% exclusive species 4.7%

63.2%—36.8%

Ω_1 : Barro Colorado Island, 1985 Census

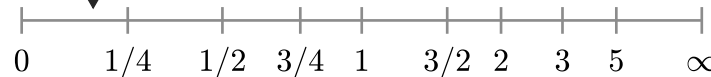
Ω_2 : Barro Colorado Island, 2015 Census

Divergence contribution $\delta D_{1/6,\tau}^P(\%)$

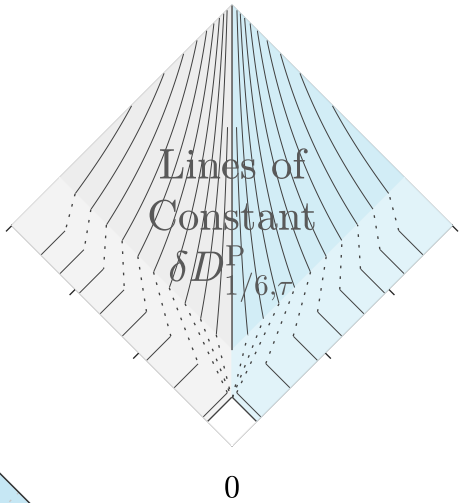
1.5 1 0.5 0 0.5 1 1.5

Instrument: **Probability-Turbulence Divergence**

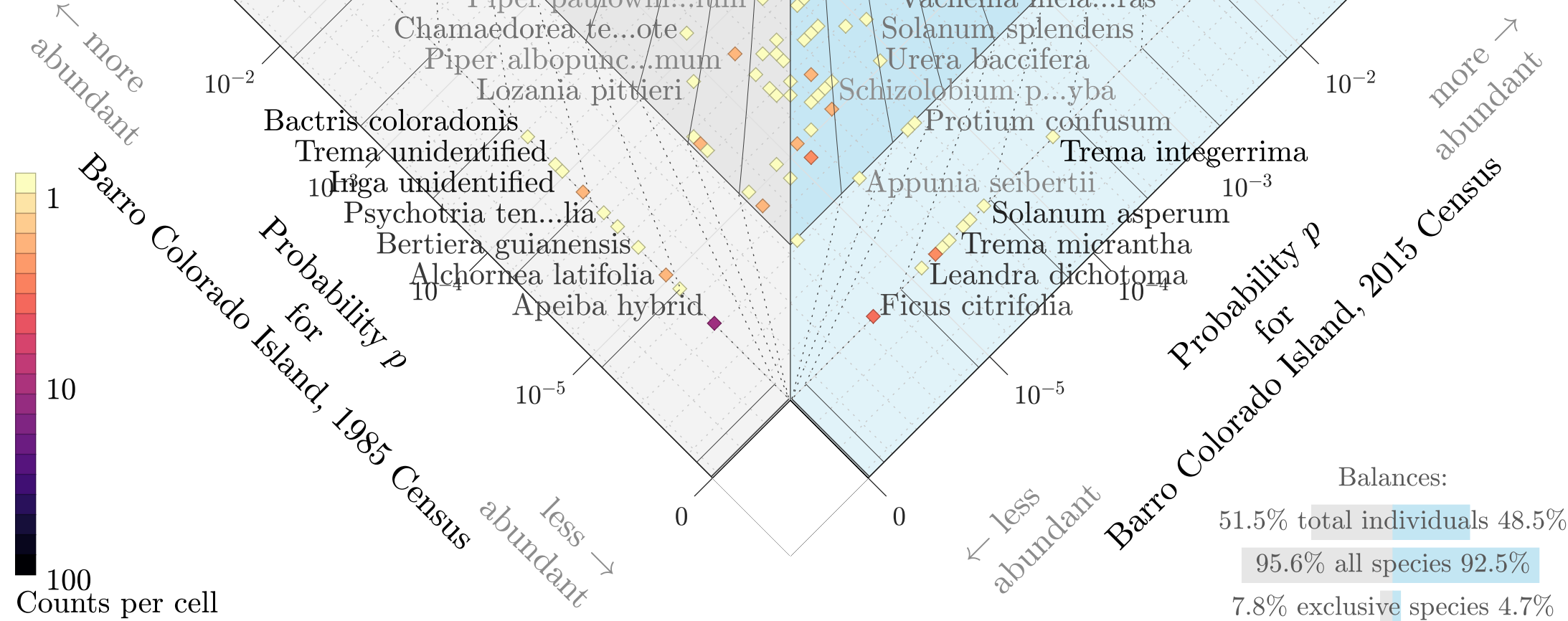
$\alpha=1/6$



$$D_{1/6}^P(\Omega_1 \parallel \Omega_2) = \sum_{\tau} \delta D_{1/6,\tau}^P$$
$$= 7 \sum_{\tau} \left| p_{\tau,2}^{1/6} - p_{\tau,2}^{1/6} \right|^{6/7}$$

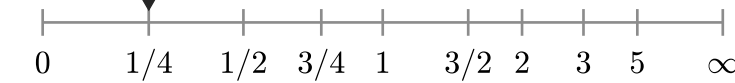


\triangleleft Bactris coloradonis	185	\Rightarrow	308
	313	\Rightarrow	195
\triangleright Trema integerrima			
Piper cordulatum	9	\Rightarrow	138
\triangleleft Trema unidentified	209	\Rightarrow	308
\triangleleft Inga unidentified	215	\Rightarrow	308
\triangleleft Geonoma interrupta	228	\Rightarrow	308
\triangleleft Koanophyllon wetmorei	231	\Rightarrow	308
	313	\Rightarrow	240
\triangleright Solanum asperum			
\triangleleft Psychotria tenuifolia	241	\Rightarrow	308
	313	\Rightarrow	246
\triangleright Cecropia longipes			
\triangleright Miconia dorsiloba			
	313	\Rightarrow	250
\triangleleft Cyathea petiolata	255	\Rightarrow	308
	313	\Rightarrow	259
\triangleright Trema micrantha			
\triangleright Jacaratia spinosa			
	313	\Rightarrow	262
\triangleleft Bertiera guianensis	266	\Rightarrow	308
	313	\Rightarrow	269
\triangleright Ficus pertusa			
	313	\Rightarrow	269
\triangleright Miconia prasina			
	313	\Rightarrow	269
\triangleright Cestrum racemosum			
	313	\Rightarrow	278
\triangleright Leandra dichotoma			
\triangleleft Alchornea latifolia	277	\Rightarrow	308
\triangleleft Pavonia dasypetala	277	\Rightarrow	308
\triangleleft Annona hayesii	286	\Rightarrow	308
Bactris barronis	137	\Rightarrow	269
	313	\Rightarrow	290
\triangleright Ficus citrifolia			
	313	\Rightarrow	290
\triangleright Piper longispicum			
	313	\Rightarrow	290
\triangleright Rauvolfia littoralis			
	313	\Rightarrow	290
\triangleright Verbesina gigantea			
\triangleleft Apeiba hybrid	298	\Rightarrow	308
\triangleleft Ficus colubrinae	298	\Rightarrow	308
\triangleleft Inga mucuna	298	\Rightarrow	308
\triangleleft Lycianthes maxonii	298	\Rightarrow	308
\triangleleft Solanum arboreum	298	\Rightarrow	308
\triangleleft Ternstroemia tepezapote	298	\Rightarrow	308
\triangleleft Vismia macrophylla	298	\Rightarrow	308
\triangleleft Xylosma chlorantha	298	\Rightarrow	308
\triangleleft Zanthoxylum setulosum	298	\Rightarrow	308
\triangleleft Nectandra sp.4_(tin...af)	298	\Rightarrow	308
\triangleleft Schefflera morototoni	298	\Rightarrow	308
\triangleleft Ficus matiziana	298	\Rightarrow	308
\triangleleft Alibertia patinoi	298	\Rightarrow	308

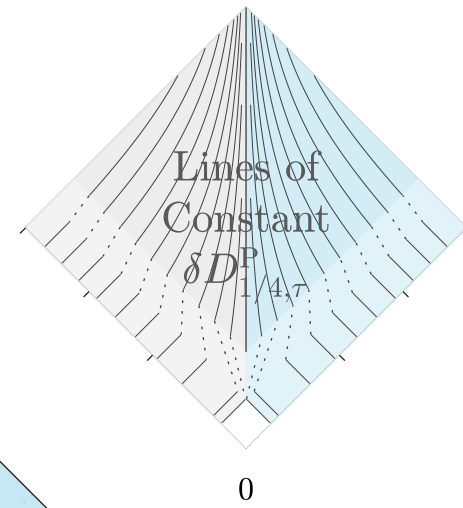
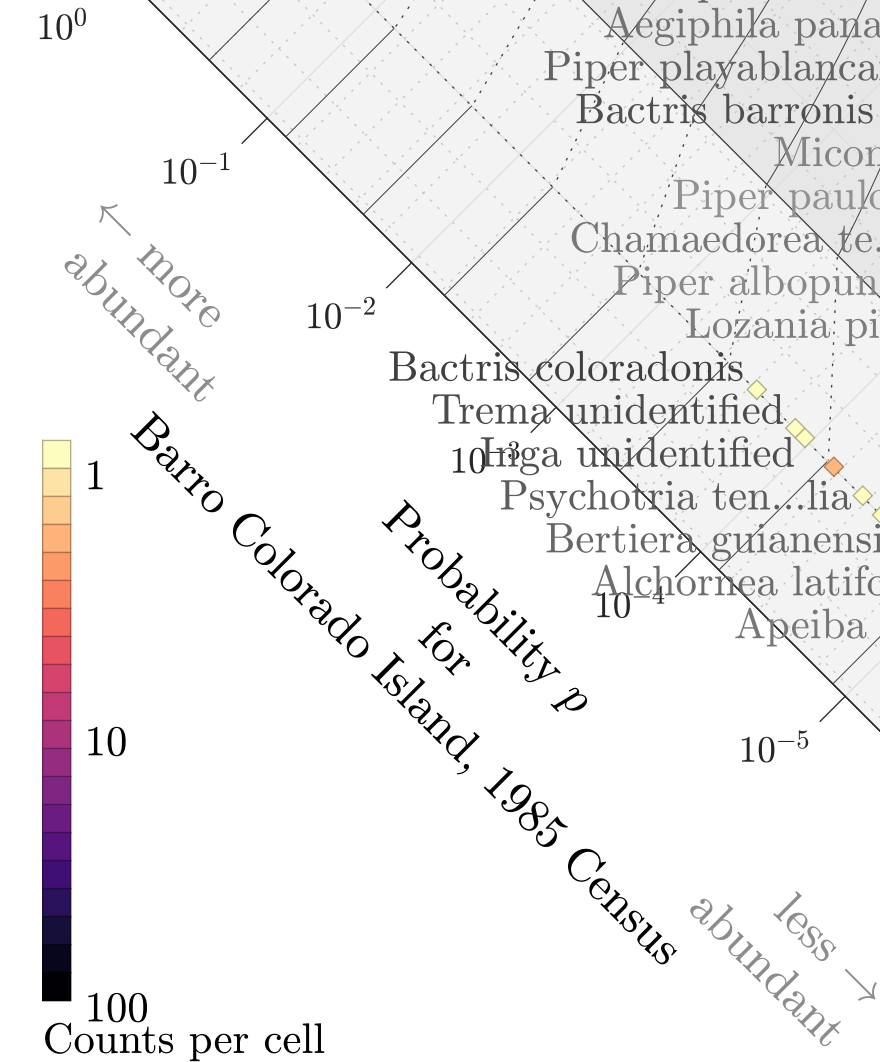


Balances:
51.5% total individuals 48.5%
95.6% all species 92.5%
7.8% exclusive species 4.7%

53.9%—46.1%

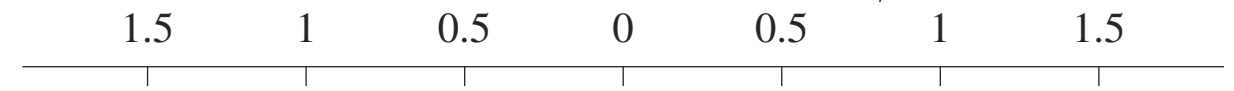
Ω_1 : Barro Colorado Island, 1985 Census Ω_2 : Barro Colorado Island, 2015 CensusInstrument: ~~Probability-Turbulence Divergence~~ $\alpha=1/4$ 

$$\begin{aligned} D_{1/4}^{\text{P}}(\Omega_1 \parallel \Omega_2) &= \sum_{\tau} \delta D_{1/4, \tau}^{\text{P}} \\ &= 5 \sum_{\tau} \left| p_{\tau, 2}^{1/4} - p_{\tau, 2}^{1/4} \right|^{4/5} \end{aligned}$$



Lines of Constant

C

Divergence contribution $\delta D_{1/4,\tau}^{\text{P}}(\%)$ 

Piper cordulatum	9⇒138	
◁Bactris coloradonis	185⇒308	
313⇒195	Trema integerrima▷	
◁Trema unidentified	209⇒308	
◁Inga unidentified	215⇒308	
Bactris barronis	137⇒269	
Poulsenia armata	14⇒53	
◁Geonoma interrupta	228⇒308	
Psychotria horizontalis	8⇒23	
◁Koanophyllon wetmorei	231⇒308	
121⇒45	Inga acuminata	
65⇒22	Calophyllum longifolium	
313⇒240	Solanum asperum▷	
◁Psychotria tenuifolia	241⇒308	
93⇒33	Palicourea guianensis	
313⇒246	Cecropia longipes▷	
313⇒250	Miconia dorsiloba▷	
◁Cyathea petiolata	255⇒308	
Piper playablancanum	140⇒236	
313⇒259	Trema micrantha▷	
46⇒16	Eugenia galalonensis	
54⇒25	Xylopia macrantha	
250⇒151	Cespedesia spathulata	
180⇒94	Inga thibaudiana	
313⇒262	Jacaratia spinosa▷	
◁Bertiera guianensis	266⇒308	
Piper culebratum	123⇒213	
185⇒100	Cecropia obtusifolia	
313⇒269	Ficus pertusa▷	
313⇒269	Miconia prasina▷	
313⇒269	Cestrum racemosum▷	
83⇒35	Cecropia insignis	
127⇒65	Chamguava schippii	
Piper cabagranum	98⇒170	
Erythrina costaricensis	103⇒178	
313⇒278	Leandra dichotoma▷	
Xylosma oligandra	97⇒165	
◁Alchornea latifolia	277⇒308	
◁Pavonia dasypetala	277⇒308	
245⇒168	Psychotria graciliflora	

51.7%—48.3%

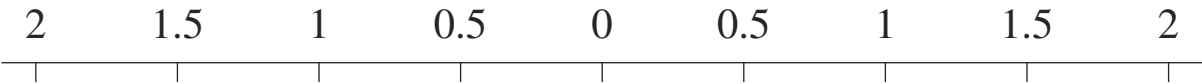
Balances:

51.5%	total individuals	48.5%
95.6%	all species	92.5%
7.8%	exclusive species	4.7%

Ω_1 : Barro Colorado Island, 1985 Census

Ω_2 : Barro Colorado Island, 2015 Census

Divergence contribution $\delta D_{1/3,\tau}^P(\%)$

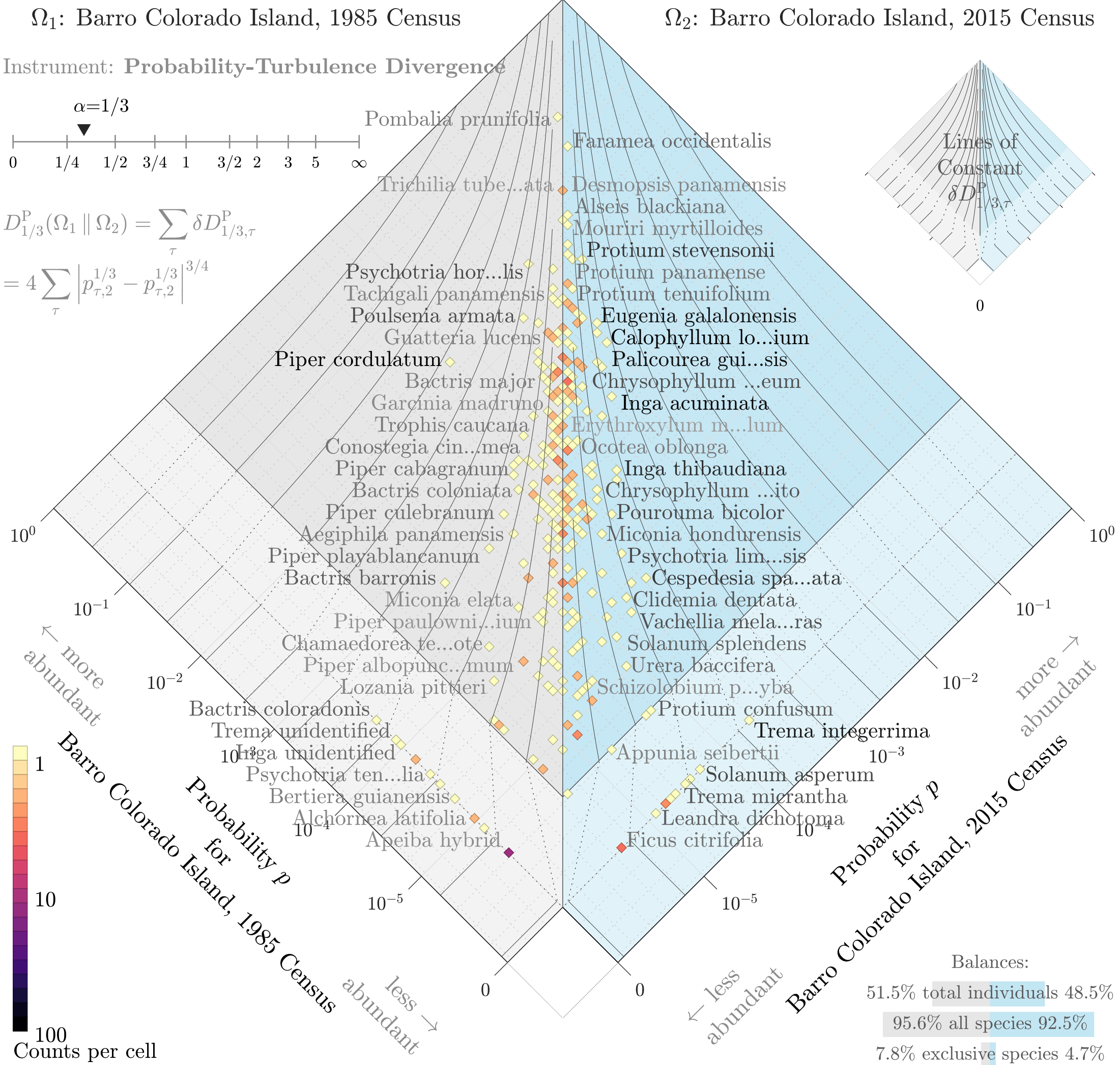


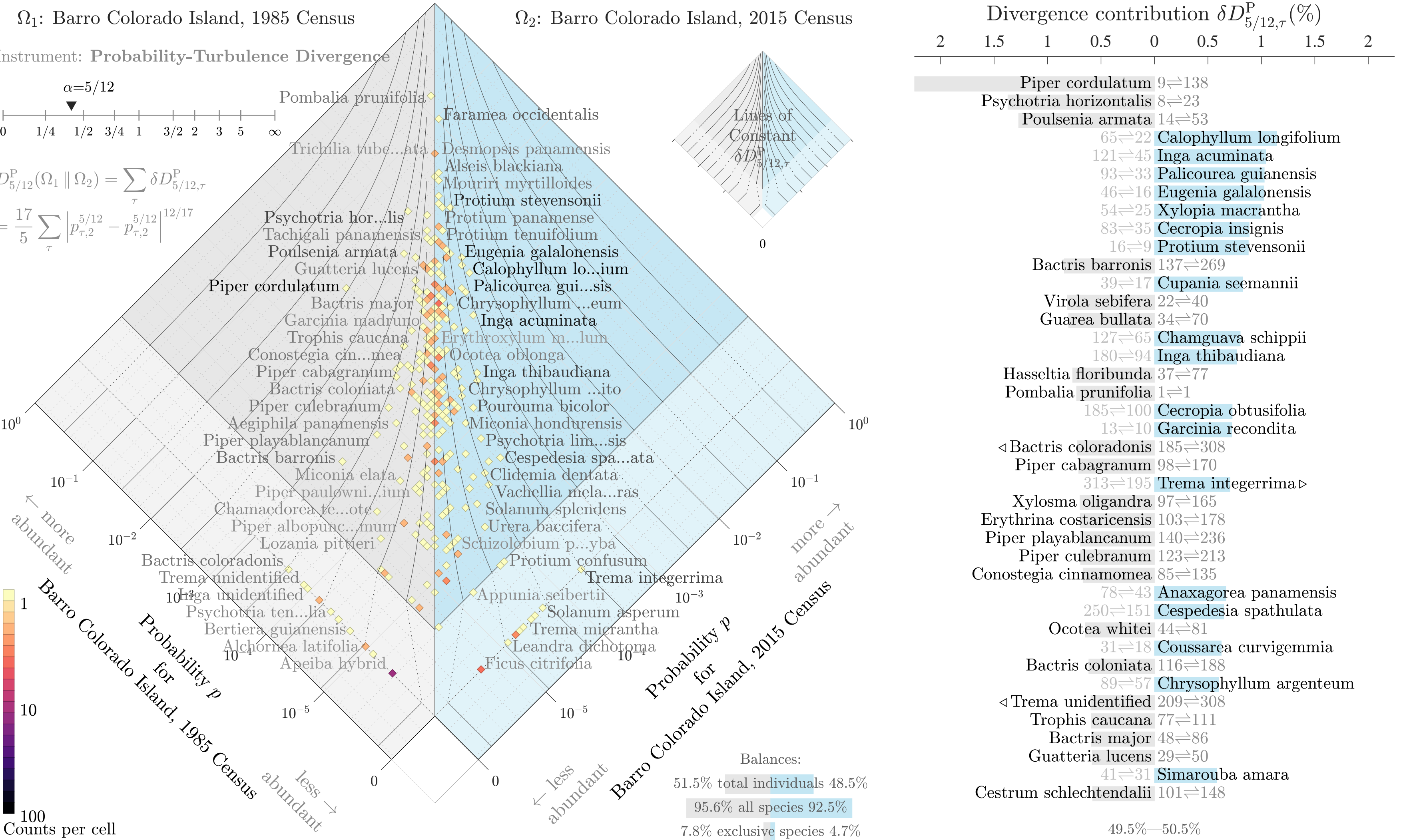
	Piper cordulatum	9⇌138
	Psychotria horizontalis	8⇌23
	Poulsenia armata	14⇌53
		65⇌22
	Calophyllum longifolium	
		121⇌45
	Inga acuminata	
		93⇌33
	Palicourea guianensis	
	Bactris barronis	137⇌269
◁	Bactris coloradonis	185⇌308
		46⇌16
	Eugenia galalonensis	
		313⇌195
	Trema integerrima	▷
		54⇌25
	Xylopia macrantha	
		83⇌35
	Cecropia insignis	
◁	Trema unidentified	209⇌308
		180⇌94
	Inga thibaudiana	
		127⇌65
	Chamguava schippii	
	Piper playablancanum	140⇌236
◁	Inga unidentified	215⇌308
		185⇌100
	Cecropia obtusifolia	
		16⇌9
	Protium stevensonii	
	Guarea bullata	34⇌70
		39⇌17
	Cupania seemannii	
	Piper culebranum	123⇌213
	Virola sebifera	22⇌40
		250⇌151
	Cespedesia spathulata	
	Piper cabagranum	98⇌170
	Erythrina costaricensis	103⇌178
	Hasseltia floribunda	37⇌77
	Xylosma oligandra	97⇌165
◁	Geonoma interrupta	228⇌308
◁	Koanophyllon wetmorei	231⇌308
	Conostegia cinnamomea	85⇌135
	Bactris coloniata	116⇌188
		313⇌240
	Solanum asperum	▷
		245⇌168
	Psychotria graciliflora	
		78⇌43
	Anaxagorea panamensis	
◁	Psychotria tenuifolia	241⇌308
		13⇌10
	Garcinia recondita	
		228⇌153
	Psychotria limonensis	
	Aegiphila panamensis	143⇌215
		204⇌128
	Pourouma bicolor	

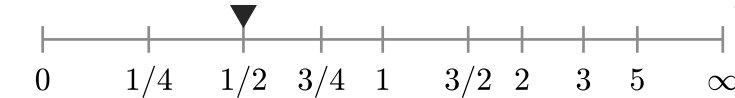
Instrument: **Probability-Turbulence Divergence**



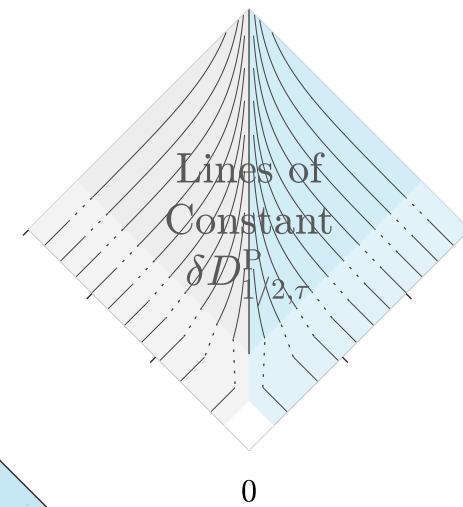
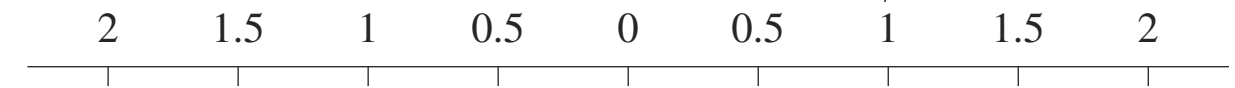
$$D_{1/3}^P(\Omega_1 \parallel \Omega_2) = \sum_{\tau} \delta D_{1/3,\tau}^P$$
$$= 4 \sum_{\tau} \left| p_{\tau,2}^{1/3} - p_{\tau,2}^{1/3} \right|^{3/4}$$





Ω_1 : Barro Colorado Island, 1985 Census Ω_2 : Barro Colorado Island, 2015 CensusInstrument: ~~Probability-Turbulence Divergence~~ $\alpha=1/2$ 

$$\begin{aligned} D_{1/2}^{\text{P}}(\Omega_1 \parallel \Omega_2) &= \sum_{\tau} \delta D_{1/2, \tau}^{\text{P}} \\ &= 3 \sum_{\tau} \left| p_{\tau, 2}^{1/2} - p_{\tau, 2}^{1/2} \right|^{2/3} \end{aligned}$$

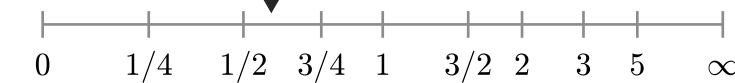
Divergence contribution $\delta D_{1/2,\tau}^{\text{P}}(\%)$ 

Piper cordulatum	9⇒138
Psychotria horizontalis	8⇒23
Poulsenia armata	14⇒53
	65⇒22 Calophyllum longifolium
	46⇒16 Eugenia galalonensis
	54⇒25 Xylopia macrantha
	93⇒33 Palicourea guianensis
	121⇒45 Inga acuminata
	16⇒9 Protium stevensonii
Pombalia prunifolia	1⇒1
	83⇒35 Cecropia insignis
	39⇒17 Cupania seemannii
Virola sebifera	22⇒40
Guarea bullata	34⇒70
	13⇒10 Garcinia recondita
	127⇒65 Chamguava schippii
Hasseltia floribunda	37⇒77
Bactris barronis	137⇒269
	180⇒94 Inga thibaudiana
	78⇒43 Anaxagorea panamensis
	31⇒18 Coussarea curvigemma
	185⇒100 Cecropia obtusifolia
	2⇒2 Faramea occidentalis
Piper cabaganum	98⇒170
Ocotea whitei	44⇒81
Xylosma oligandra	97⇒165
Erythrina costaricensis	103⇒178
Conostegia cinnamomea	85⇒135
	10⇒8 Swartzia simplex
Capparidastrium frondosum	12⇒15
Piper culebranum	123⇒213
	41⇒31 Simarouba amara
Guatteria lucens	29⇒50
Tachigali panamensis	17⇒30
	38⇒29 Tabernaemontana arborea
Piper playablancaum	140⇒236
	89⇒57 Chrysophyllum argenteum
Bactris major	48⇒86
	74⇒49 Psychotria marginata
Sorocea affinis	15⇒19

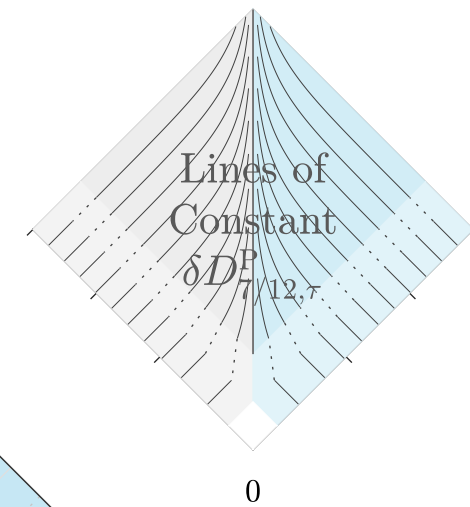
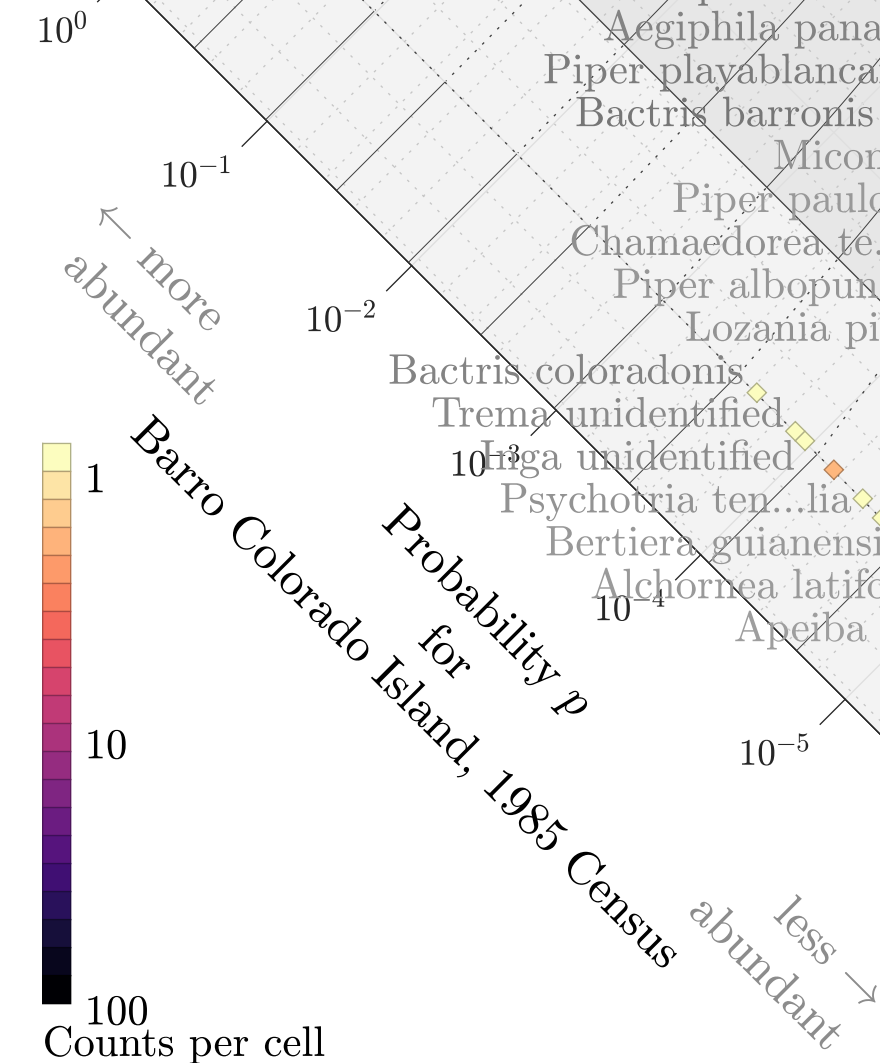
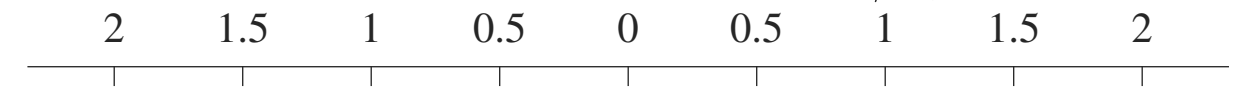
48.8%—51.2%

Balances:

51.5%	total individuals	48.5%
95.6%	all species	92.5%
7.8%	exclusive species	4.7%

Ω_1 : Barro Colorado Island, 1985 Census Ω_2 : Barro Colorado Island, 2015 CensusInstrument: ~~Probability-Turbulence Divergence~~ $\alpha=7/12$ 

$$\begin{aligned} D_{7/12}^{\text{P}}(\Omega_1 \parallel \Omega_2) &= \sum_{\tau} \delta D_{7/12, \tau}^{\text{P}} \\ &= \frac{19}{7} \sum_{\tau} \left| p_{\tau, 2}^{7/12} - p_{\tau, 2}^{7/12} \right|^{12/19} \end{aligned}$$

Divergence contribution $\delta D_{7/12,\tau}^{\text{P}}(\%)$ 

Piper cordulatum	9⇒138
Psychotria horizontalis	8⇒23
Poulsenia armata	14⇒53
	65⇒22 Calophyllum longifolium
Pombalia prunifolia	1⇒1
	46⇒16 Eugenia galalonensis
	16⇒9 Protium stevensonii
	54⇒25 Xylopia macrantha
	93⇒33 Palicourea guianensis
	121⇒45 Inga acuminata
	39⇒17 Cupania seemannii
	83⇒35 Cecropia insignis
Virola sebifera	22⇒40
	13⇒10 Garcinia recondita
Guarea bullata	34⇒70
	2⇒2 Faramea occidentalis
Hasseltia floribunda	37⇒77
	127⇒65 Chamguava schippii
	31⇒18 Coussarea curvigemma
	10⇒8 Swartzia simplex
Capparidastrium frondosum	12⇒15
	78⇒43 Anaxagorea panamensis
Ocotea whitei	44⇒81
	180⇒94 Inga thibaudiana
Tachigali panamensis	17⇒30
	41⇒31 Simarouba amara
	38⇒29 Tabernaemontana arborea
Guatteria lucens	29⇒50
Sorocea affinis	15⇒19
Bactris barronis	137⇒269
	185⇒100 Cecropia obtusifolia
Piper cabagranum	98⇒170
Conostegia cinnamomea	85⇒135
Xylosma oligandra	97⇒165
	89⇒57 Chrysophyllum argenteum
Bactris major	48⇒86
Erythrina costaricensis	103⇒178
	6⇒5 Alseis blackiana
	74⇒49 Psychotria marginata
Pouteria reticulata	30⇒48

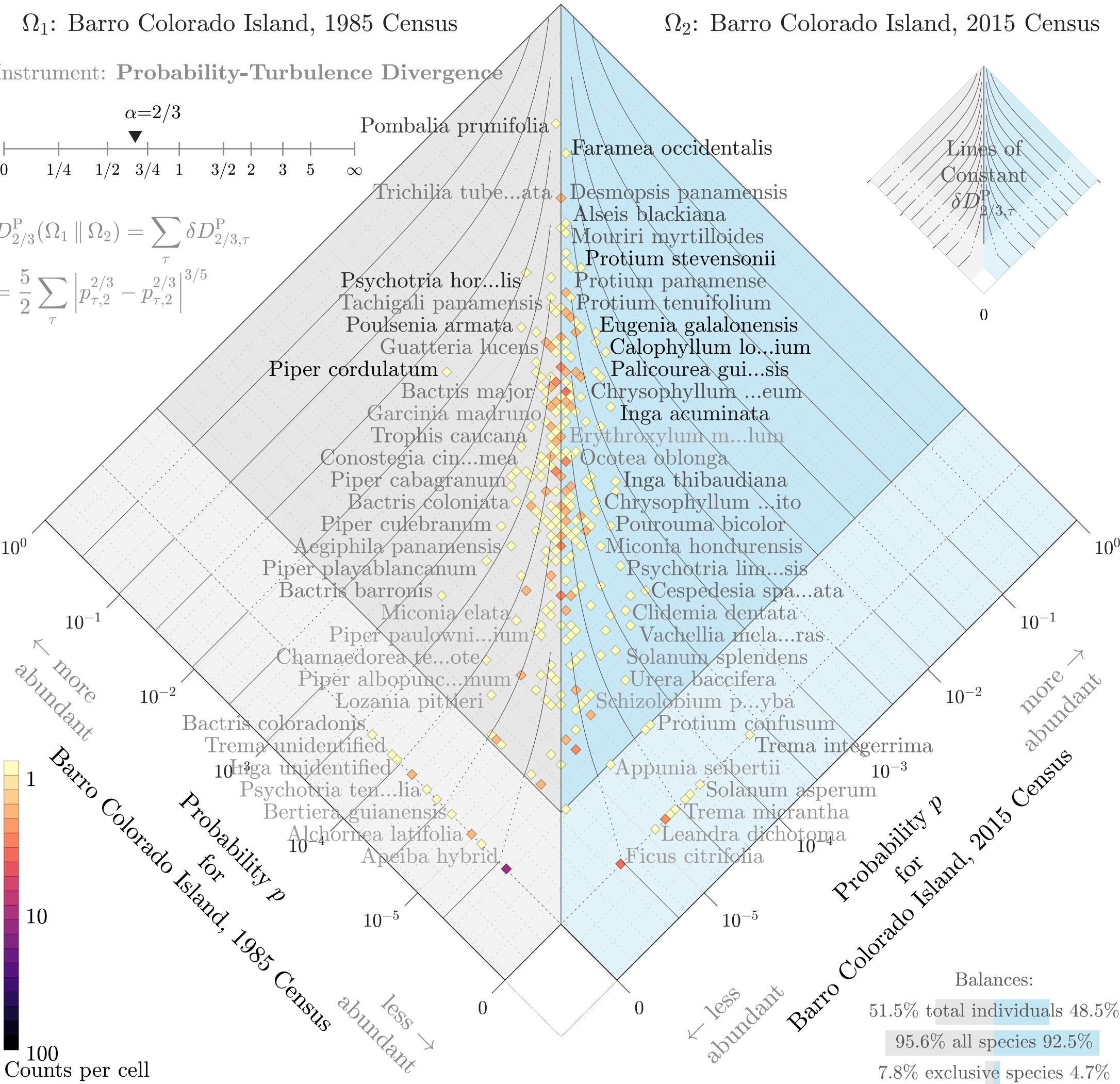
Balances:

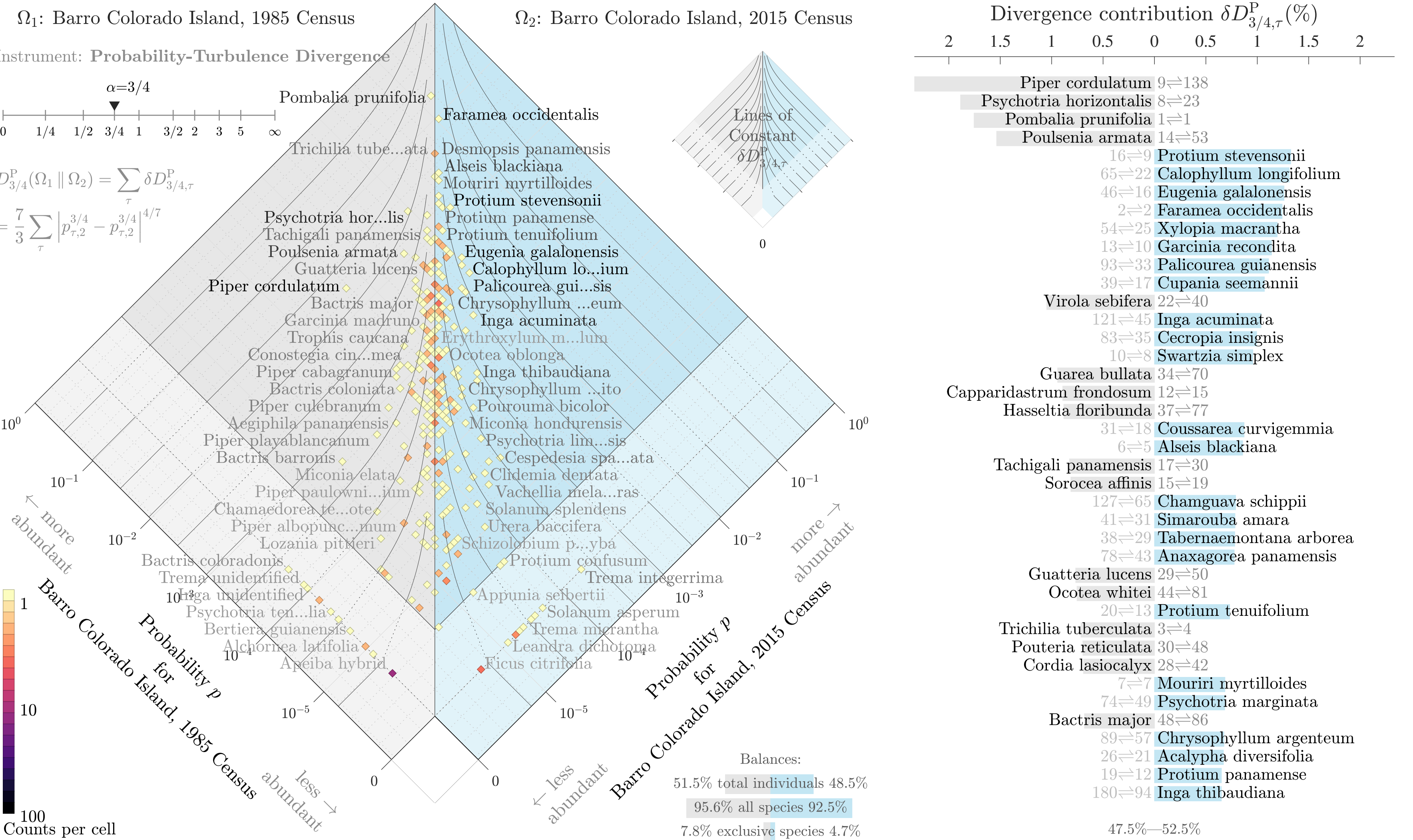
51.5% total individuals 48.5%

95.6% all species 92.5%

7.8% exclusive species 4.7%

48.3%—51.7%





Instrument: ~~Probability-Turbulence Divergence~~

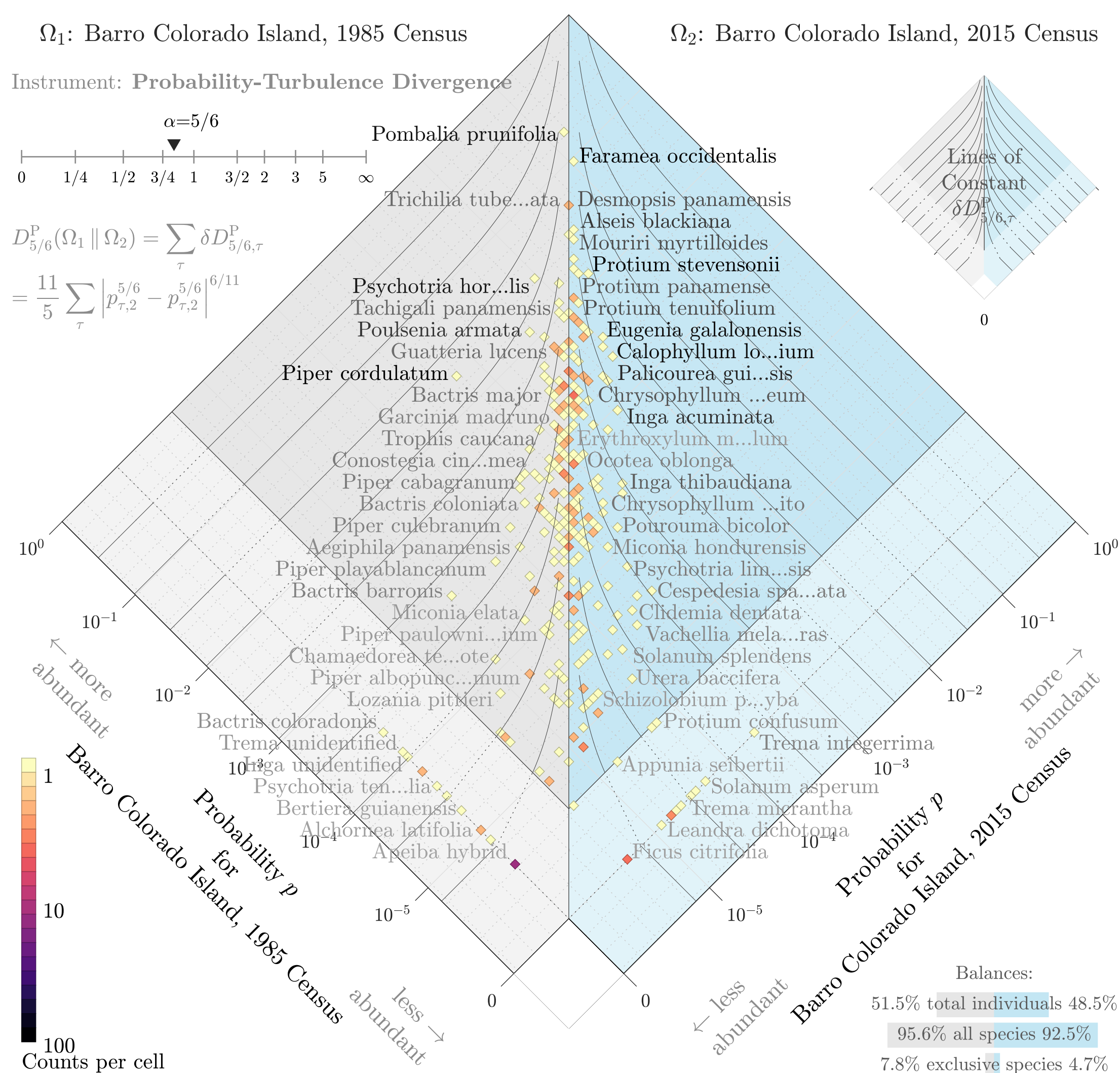
Figure 1 is a diamond-shaped plot representing the parameter space of $\delta D_{5/6, \tau}^P$. The plot is divided into two regions: a light blue region on the left and a light gray region on the right. The vertical axis is labeled '0' at the bottom. The horizontal axis is labeled $\delta D_{5/6, \tau}^P$. The plot shows several curved lines representing lines of constant $\delta D_{5/6, \tau}^P$, which are labeled with values ranging from 0 to 1. The lines are more densely packed in the lower half of the plot and become more spread out as they move towards the top. The text 'Lines of Constant $\delta D_{5/6, \tau}^P$ ' is written across the center of the plot.

A horizontal number line with tick marks at intervals of 0.5. The labels above the tick marks are 2, 1.5, 1, 0.5, 0, 0.5, 1, 1.5, 2.

A horizontal number line starting at 0 and ending at ∞ . Tick marks are placed at intervals of $1/4$ from 0 to 1, then at $3/2$, 2, 3, and 5. A downward-pointing arrow is positioned above the tick mark for $3/4$.

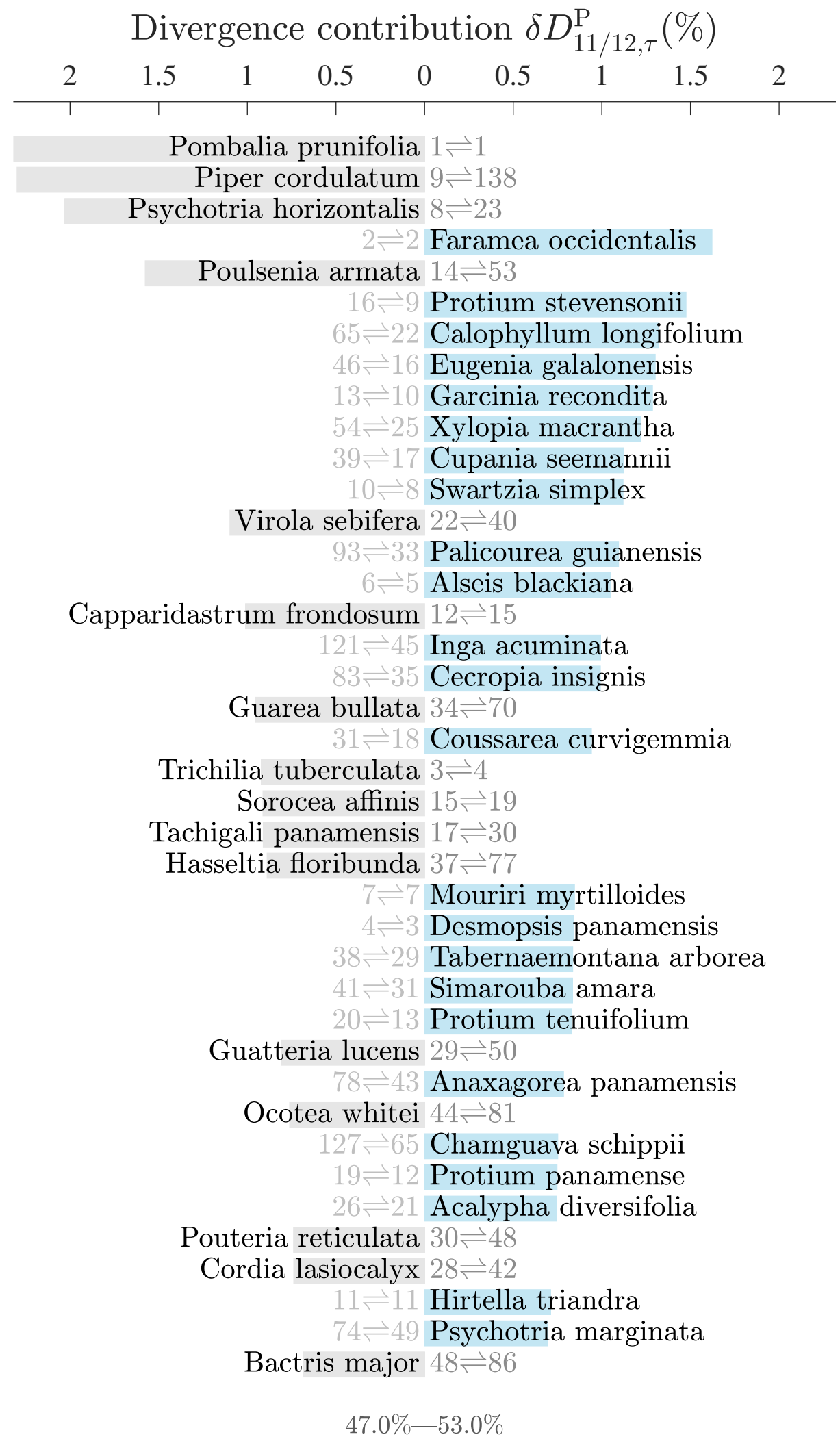
$$D_{5/6}^{\text{P}}(\Omega_1 \parallel \Omega_2) = \sum_{\tau} \delta D_{5/6, \tau}^{\text{P}}$$

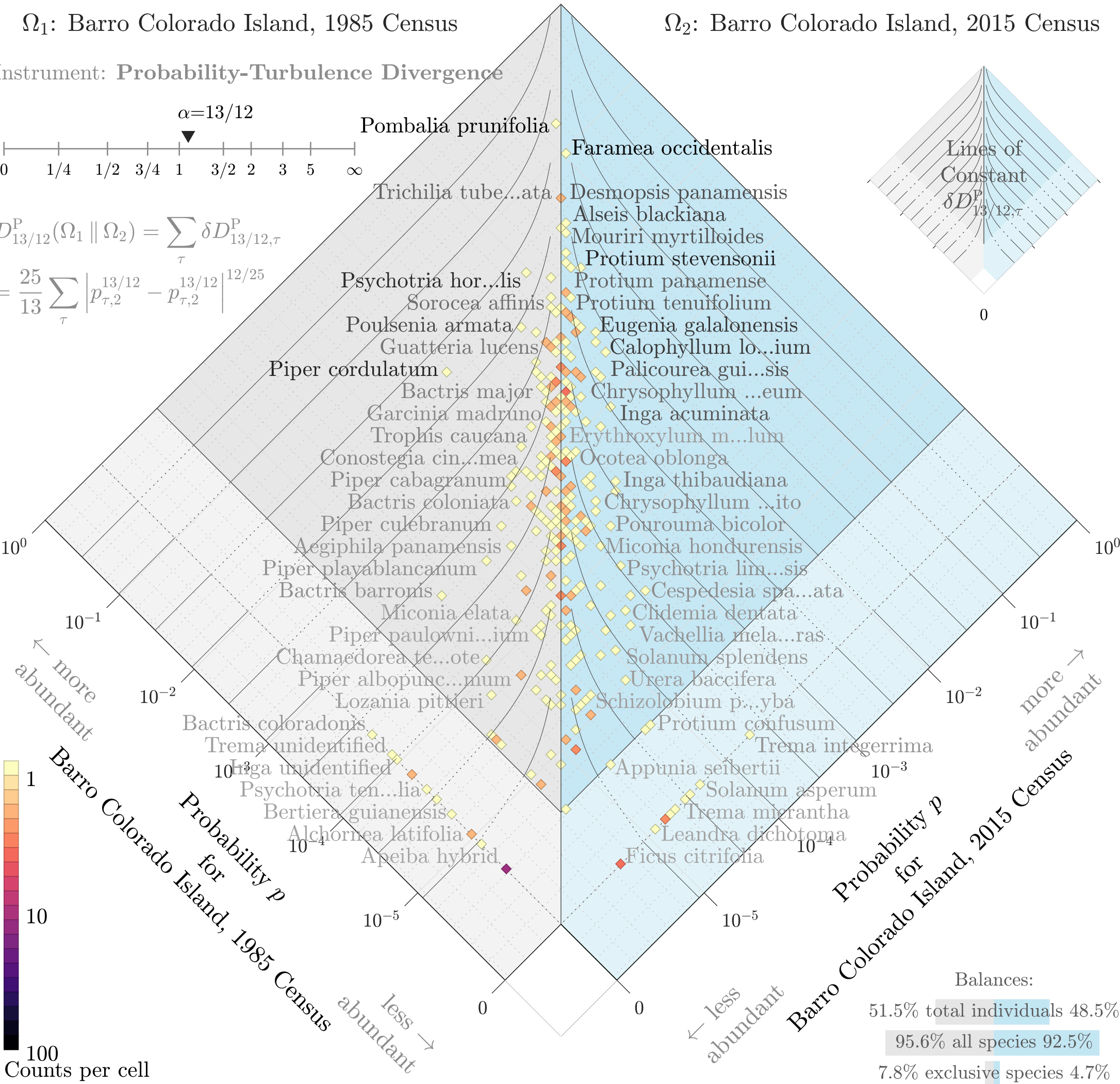
$$= \frac{11}{5} \sum_{\tau} \left| p_{\tau, 2}^{5/6} - p_{\tau, 2}^{5/6} \right|^{6/11}$$



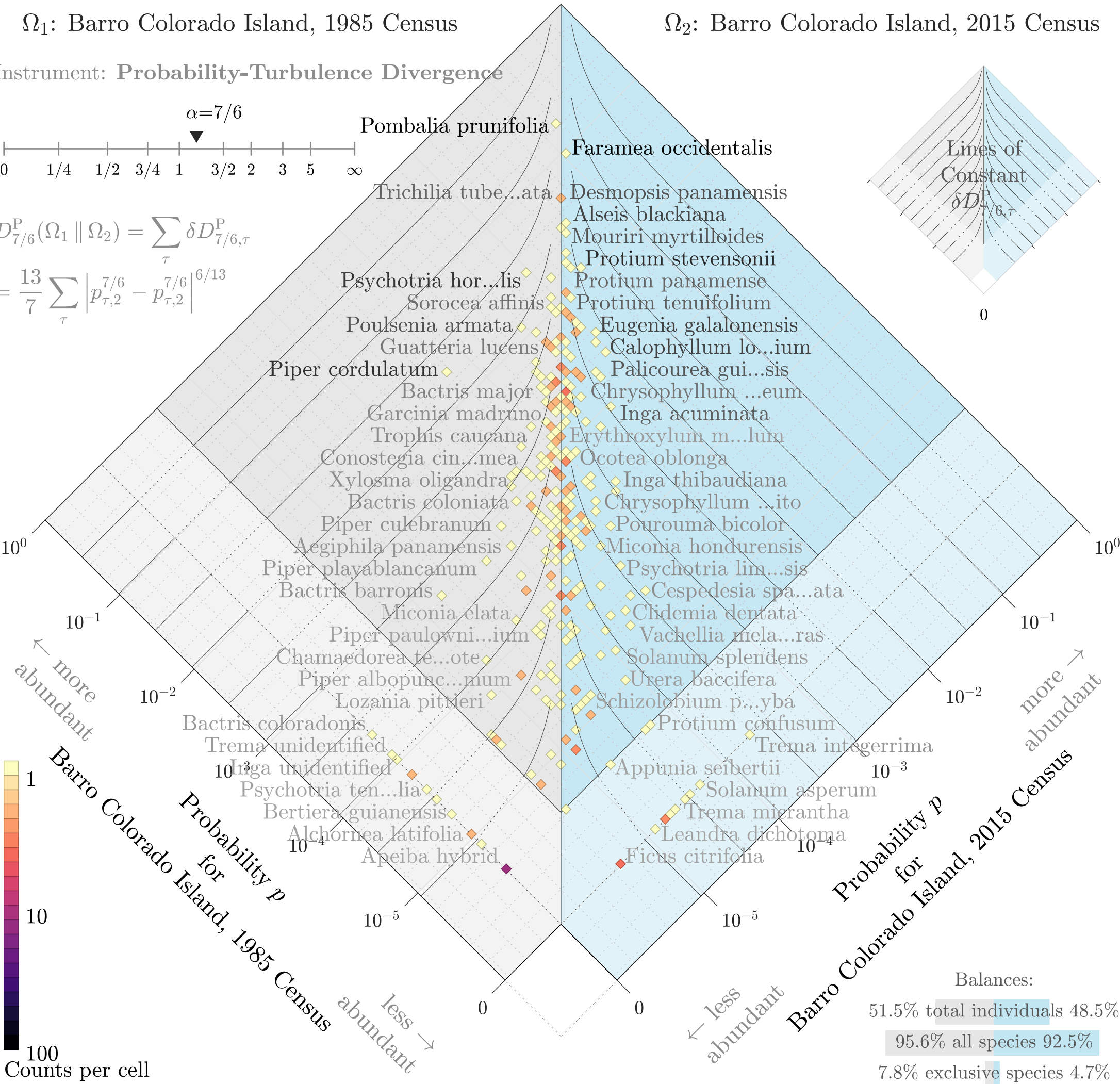
Piper cordulatum	9⇌138
Pombalia prunifolia	1⇌1
Psychotria horizontalis	8⇌23
Poulsenia armata	14⇌53
	2⇌2 Faramea occidentalis
	16⇌9 Protium stevensonii
	65⇌22 Calophyllum longifolium
	46⇌16 Eugenia galalonensis
	13⇌10 Garcinia recondita
	54⇌25 Xylopia macrantha
	93⇌33 Palicourea guianensis
	39⇌17 Cupania seemannii
Virola sebifera	22⇌40
	10⇌8 Swartzia simplex
	121⇌45 Inga acuminata
	83⇌35 Cecropia insignis
	6⇌5 Alseis blackiana
Caparidastrium frondosum	12⇌15
Guarea bullata	34⇌70
	31⇌18 Coussarea curvigemmia
Hasseltia floribunda	37⇌77
Tachigali panamensis	17⇌30
Sorocea affinis	15⇌19
Trichilia tuberculata	3⇌4
	41⇌31 Simarouba amara
	38⇌29 Tabernaemontana arborea
Guatteria lucens	29⇌50
	20⇌13 Protium tenuifolium
	78⇌43 Anaxagorea panamensis
	127⇌65 Chamguava schippii
	7⇌7 Mouriri myrtilloides
Ocotea whitei	44⇌81
	4⇌3 Desmopsis panamensis
Pouteria reticulata	30⇌48
Cordia lasiocalyx	28⇌42
	26⇌21 Acalypha diversifolia
	19⇌12 Protium panamense
	74⇌49 Psychotria marginata
Bactris major	48⇌86
	89⇌57 Chrysophyllum argenteum

47.2%—52.8%

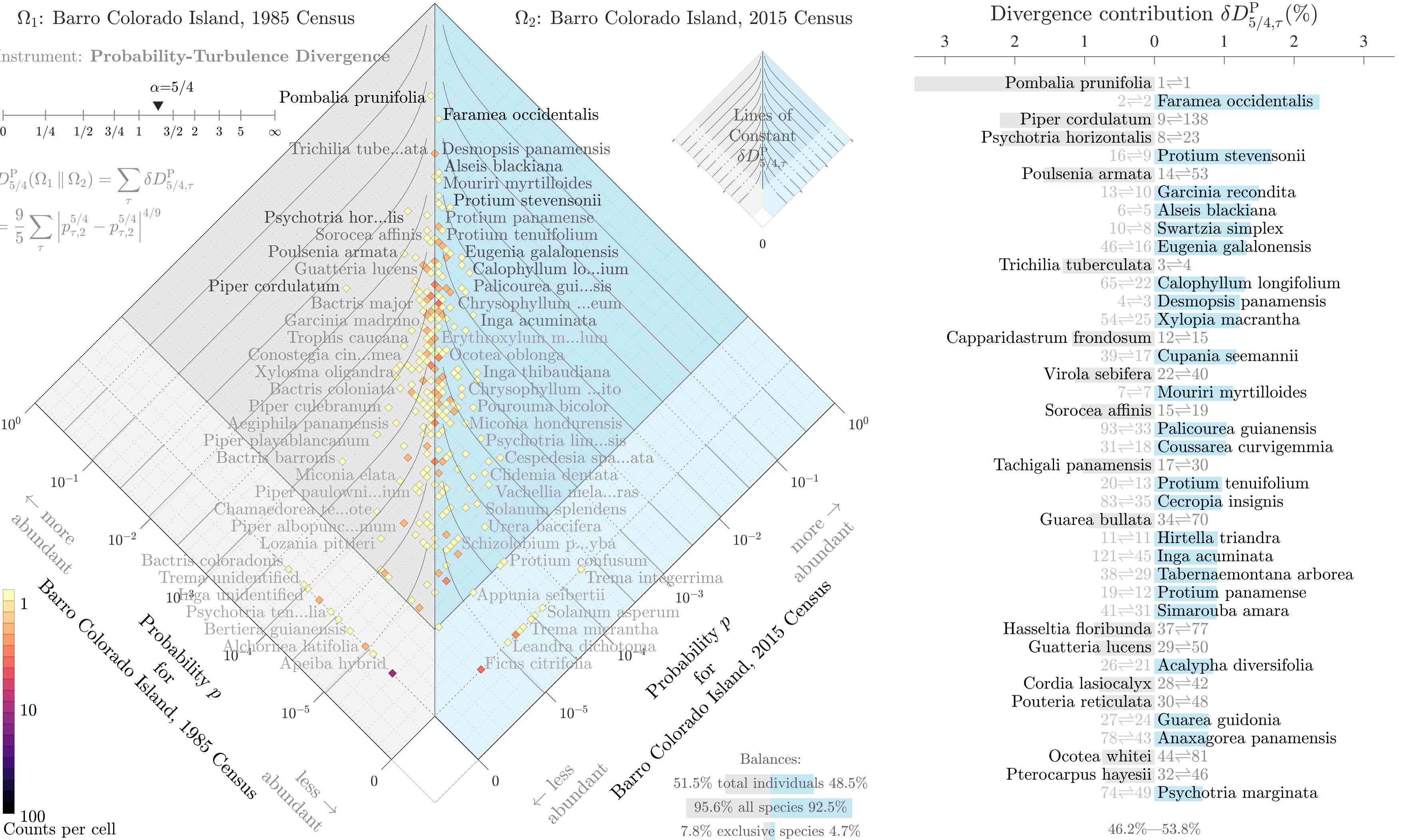
Instrument: ~~Probability-Turbulence Divergence~~



Divergence contribution $\delta D_{13/12,\tau}^P$ (%)		
2	1	0
1	0	1
2	1	0
Pombalia prunifolia	1 \Rightarrow 1	
Piper cordulatum	9 \Rightarrow 138	
Psychotria horizontalis	8 \Rightarrow 23	
	2 \Rightarrow 2	Faramea occidentalis
Poulsenia armata	14 \Rightarrow 53	
	16 \Rightarrow 9	Protium stevensonii
	13 \Rightarrow 10	Garcinia recondita
	46 \Rightarrow 16	Eugenia galalonensis
	65 \Rightarrow 22	Calophyllum longifolium
	10 \Rightarrow 8	Swartzia simplex
	54 \Rightarrow 25	Xylopia macrantha
	6 \Rightarrow 5	Alseis blackiana
	39 \Rightarrow 17	Cupania seemannii
Virola sebifera	22 \Rightarrow 40	
Trichilia tuberculata	3 \Rightarrow 4	
Capparidastrum frondosum	12 \Rightarrow 15	
	93 \Rightarrow 33	Palicourea guianensis
	4 \Rightarrow 3	Desmopsis panamensis
	7 \Rightarrow 7	Mouriri myrtilloides
	31 \Rightarrow 18	Coussarea curvigemmia
Sorocea affinis	15 \Rightarrow 19	
	83 \Rightarrow 35	Cecropia insignis
Tachigali panamensis	17 \Rightarrow 30	
Guarea bullata	34 \Rightarrow 70	
	121 \Rightarrow 45	Inga acuminata
	20 \Rightarrow 13	Protium tenuifolium
Hasseltia floribunda	37 \Rightarrow 77	
	38 \Rightarrow 29	Tabernaemontana arborea
	41 \Rightarrow 31	Simarouba amara
Guatteria lucens	29 \Rightarrow 50	
	19 \Rightarrow 12	Protium panamense
	11 \Rightarrow 11	Hirtella triandra
	26 \Rightarrow 21	Acalypha diversifolia
	78 \Rightarrow 43	Anaxagorea panamensis
Cordia lasiocalyx	28 \Rightarrow 42	
Pouteria reticulata	30 \Rightarrow 48	
Ocotea whitei	44 \Rightarrow 81	
	27 \Rightarrow 24	Guarea guidonia
	127 \Rightarrow 65	Chamguava schippii
	74 \Rightarrow 49	Psychotria marginata
	46.5%—53.5%	



Divergence contribution $\delta D_{7/6,\tau}^P$ (%)						
3	2	1	0	1	2	3

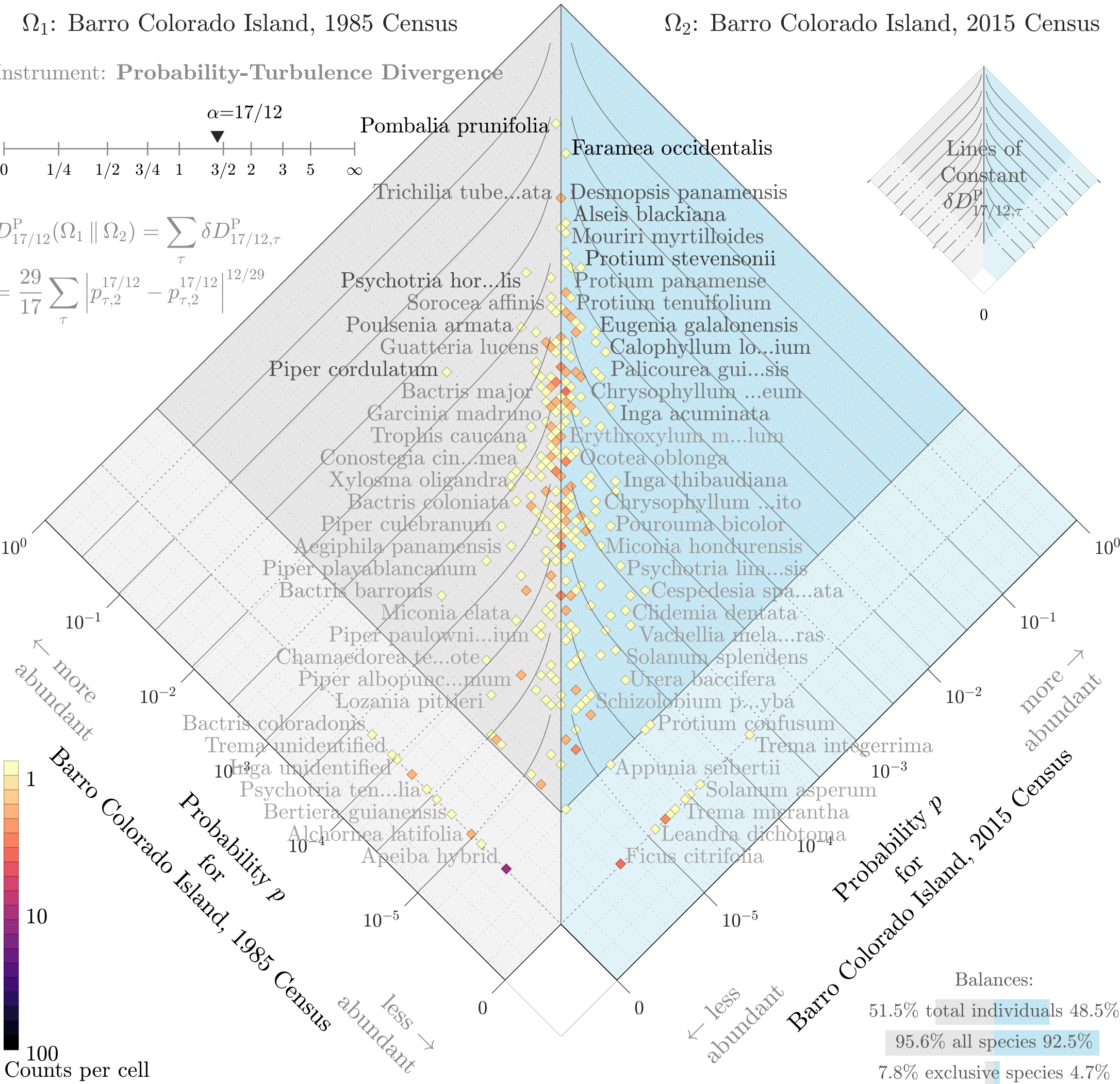


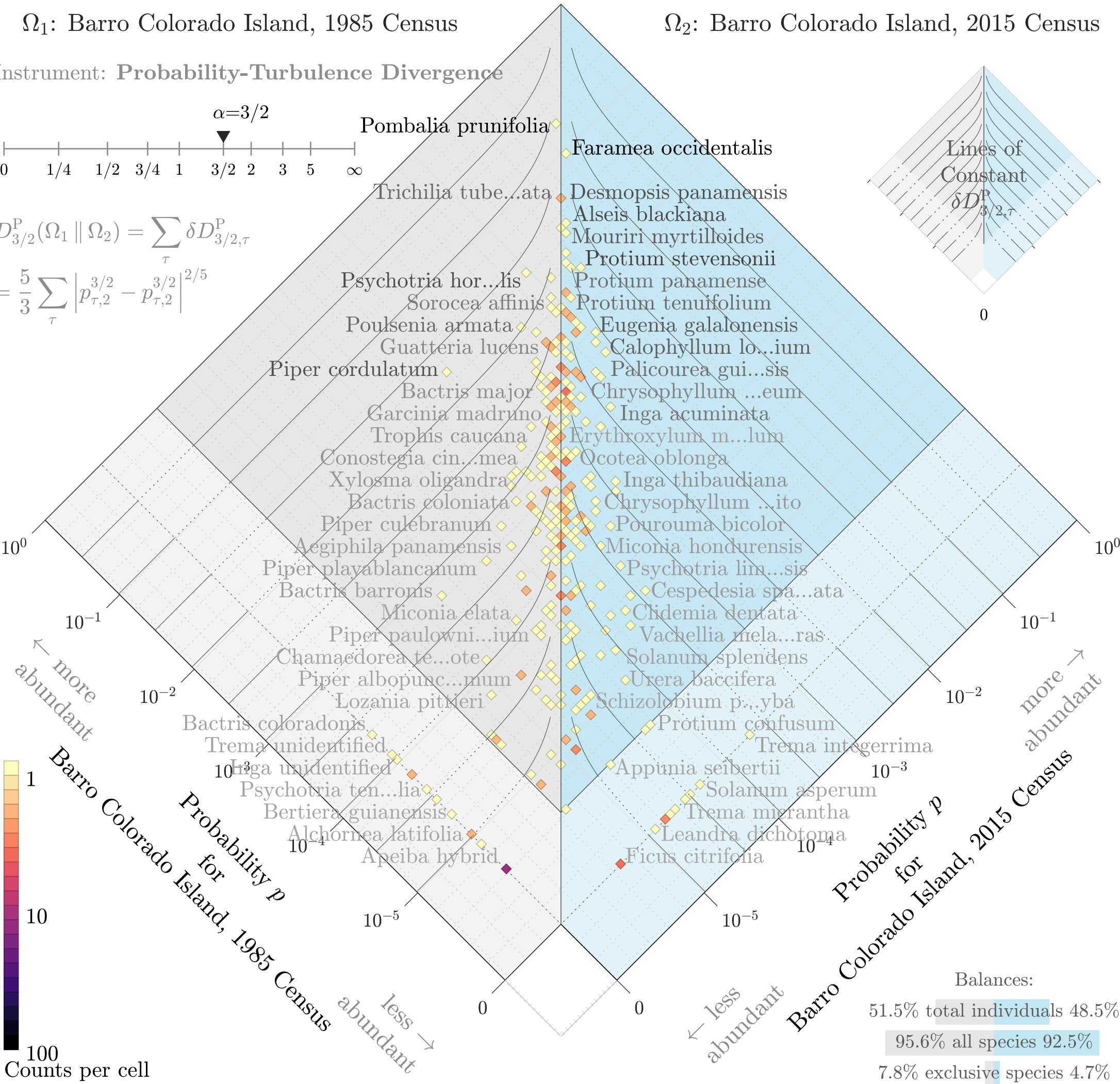
Instrument: ~~Probability-Turbulence Divergence~~

A horizontal number line with seven tick marks. Above the tick marks are the numbers 3, 2, 1, 0, 1, 2, and 3, respectively. The line is centered at 0, with values increasing as they move away from the center in both directions.

Figure 1: A ternary plot showing the relative abundance of 25 plant species across two censuses (1985 and 2015) and a probability p . The plot is a large triangle with axes labeled "more abundant" and "less abundant". A color bar on the left indicates "Counts per cell" from 1 to 100. The plot is divided into two regions: a light blue region for "Probability p for Barro Colorado Island, 1985 Census" and a light orange region for "Probability p for Barro Colorado Island, 2015 Census". The plot shows that the 1985 census is more abundant than the 2015 census for most species, and that the probability p is higher for the 1985 census than for the 2015 census. A balance bar at the bottom shows that the 1985 census has a higher balance (51.5%) than the 2015 census (48.5%).

Pombalia	prunifolia	1⇌1
		2⇌2 Faramaea occidentalis
Psychotria	horizontalis	8⇌23
Piper	cordulatum	9⇌138
		16⇌9 Protium stevensonii
Poulsenia	armata	14⇌53
		13⇌10 Garcinia recondita
		6⇌5 Alseis blackiana
		10⇌8 Swartzia simplex
Trichilia	tuberculata	3⇌4
		46⇌16 Eugenia galalonensis
		4⇌3 Desmopsis panamensis
		65⇌22 Calophyllum longifolium
		54⇌25 Xylopia macrantha
Capparidastrium	frondosum	12⇌15
		7⇌7 Mouriri myrtilloides
		39⇌17 Cupania seemannii
Virola	sebifera	22⇌40
Sorocea	affinis	15⇌19
Tachigali	panamensis	17⇌30
		31⇌18 Coussarea curvigemma
		93⇌33 Palicourea guianensis
		20⇌13 Protium tenuifolium
		11⇌11 Hirtella triandra
		83⇌35 Cecropia insignis
Guarea	bullata	34⇌70
		19⇌12 Protium panamense
		38⇌29 Tabernaemontana arborea
		41⇌31 Simarouba amara
		121⇌45 Inga acuminata
		26⇌21 Acalypha diversifolia
Hasseltia	floribunda	37⇌77
Guatteria	lucens	29⇌50
Cordia	lasiocalyx	28⇌42
		27⇌24 Guarea guidonia
Pouteria	reticulata	30⇌48
		78⇌43 Anaxagorea panamensis
Ocotea	whitei	44⇌81
Pterocarpus	hayesii	32⇌46
		18⇌14 Rinorea sylvatica
46.0%—54.0%		





Ω_1 : Barro Colorado Island, 1985 Census

Ω_2 : Barro Colorado Island, 2015 Census

Divergence contribution $\delta D_{2,\tau}^P(\%)$

5 0 5

Pombalia prunifolia	1 \Rightarrow 1
	2 \Rightarrow 2
Psychotria horizontalis	8 \Rightarrow 23
Piper cordulatum	9 \Rightarrow 138
Trichilia tuberculata	3 \Rightarrow 4
	4 \Rightarrow 3
	6 \Rightarrow 5
	16 \Rightarrow 9
	13 \Rightarrow 10
	10 \Rightarrow 8
	7 \Rightarrow 7
Poulsenia armata	14 \Rightarrow 53
Capparidastrum frondosum	12 \Rightarrow 15
	46 \Rightarrow 16
	11 \Rightarrow 11
Sorocea affinis	15 \Rightarrow 19
	65 \Rightarrow 22
	39 \Rightarrow 17
	54 \Rightarrow 25
	20 \Rightarrow 13
Virola sebifera	22 \Rightarrow 40
Tachigali panamensis	17 \Rightarrow 30
	31 \Rightarrow 18
	19 \Rightarrow 12
	26 \Rightarrow 21
	38 \Rightarrow 29
	93 \Rightarrow 33
	41 \Rightarrow 31
	27 \Rightarrow 24
Guarea bullata	34 \Rightarrow 70
	18 \Rightarrow 14
	83 \Rightarrow 35
Guatteria lucens	29 \Rightarrow 50
	5 \Rightarrow 6
Cordia lasiocalyx	28 \Rightarrow 42
Pouteria reticulata	30 \Rightarrow 48
Hasseltia floribunda	37 \Rightarrow 77
Beilschmiedia towarensis	21 \Rightarrow 28
	121 \Rightarrow 45
Pterocarpus hayesii	32 \Rightarrow 46

Instrument: **Probability-Turbulence Divergence**

$\alpha=2$

0 1/4 1/2 3/4 1 3/2 2 3 5 ∞

$$D_2^P(\Omega_1 \parallel \Omega_2) = \sum_{\tau} \delta D_{2,\tau}^P$$
$$= \frac{3}{2} \sum_{\tau} |p_{\tau,2}^2 - p_{\tau,2}^1|^{1/3}$$

Lines of
Constant
 $\delta D_{2,\tau}^P$

0

10^0

10^0

10^{-1}

10^{-1}

10^{-2}

10^{-2}

10^{-3}

10^{-3}

10^{-4}

10^{-4}

10^{-5}

10^{-5}

10^{-6}

10^{-6}

10^{-7}

10^{-7}

10^{-8}

10^{-8}

10^{-9}

10^{-9}

10^{-10}

← more
abundant

more →
abundant

Barro Colorado Island, 1985 Census
Probability p
← more abundant

Barro Colorado Island, 2015 Census
Probability p
← less abundant

1
10
100
Counts per cell

Balances:

51.5% total individuals 48.5%

95.6% all species 92.5%

7.8% exclusive species 4.7%

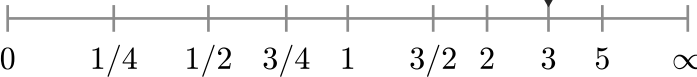
45.2%—54.8%

Ω_1 : Barro Colorado Island, 1985 Census

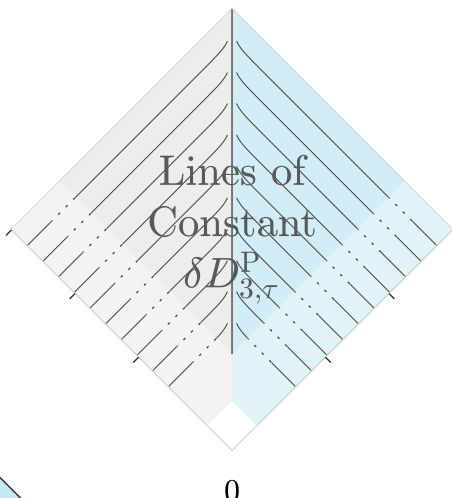
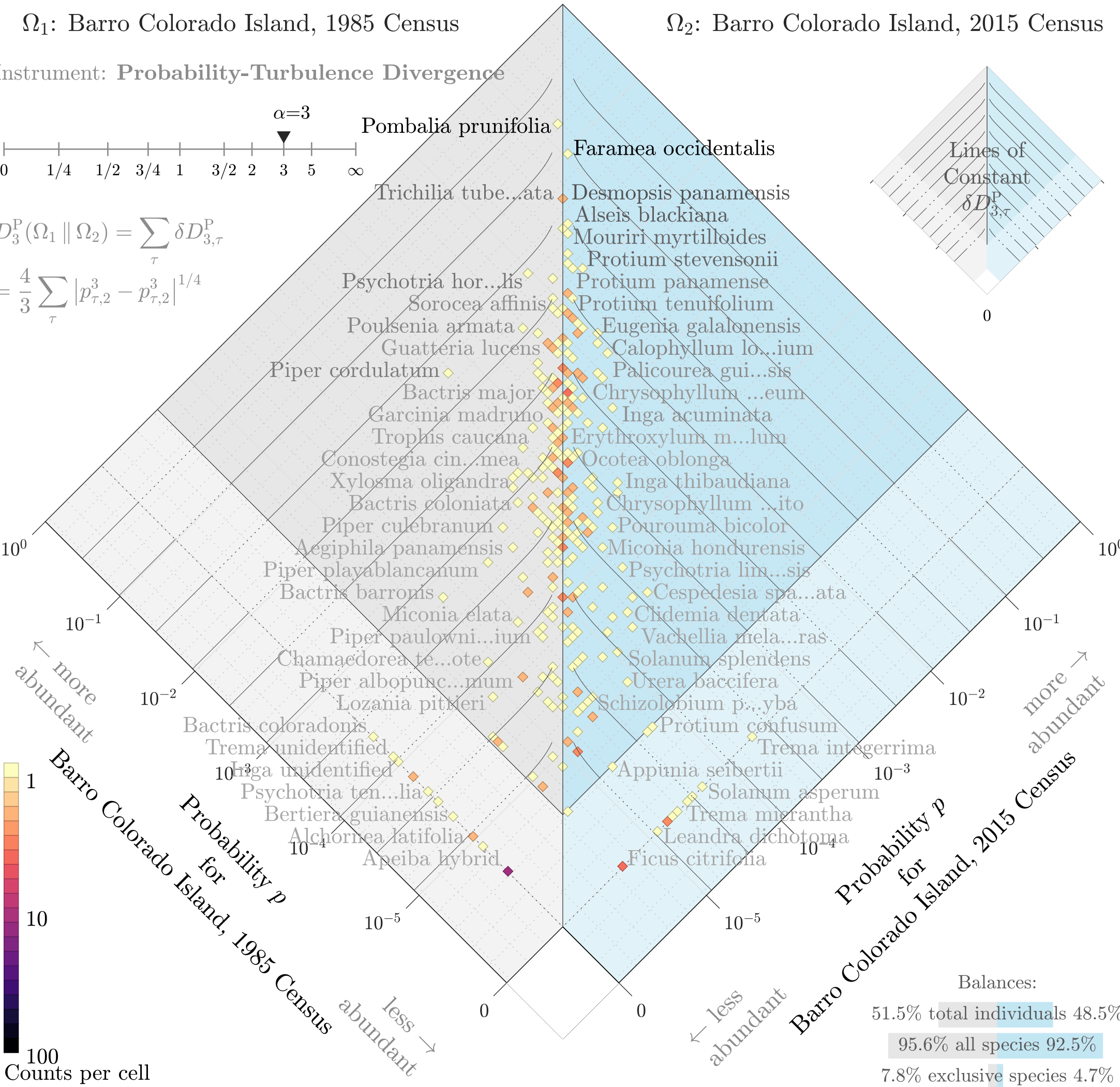
Ω_2 : Barro Colorado Island, 2015 Census

Instrument: **Probability-Turbulence Divergence**

$\alpha=3$

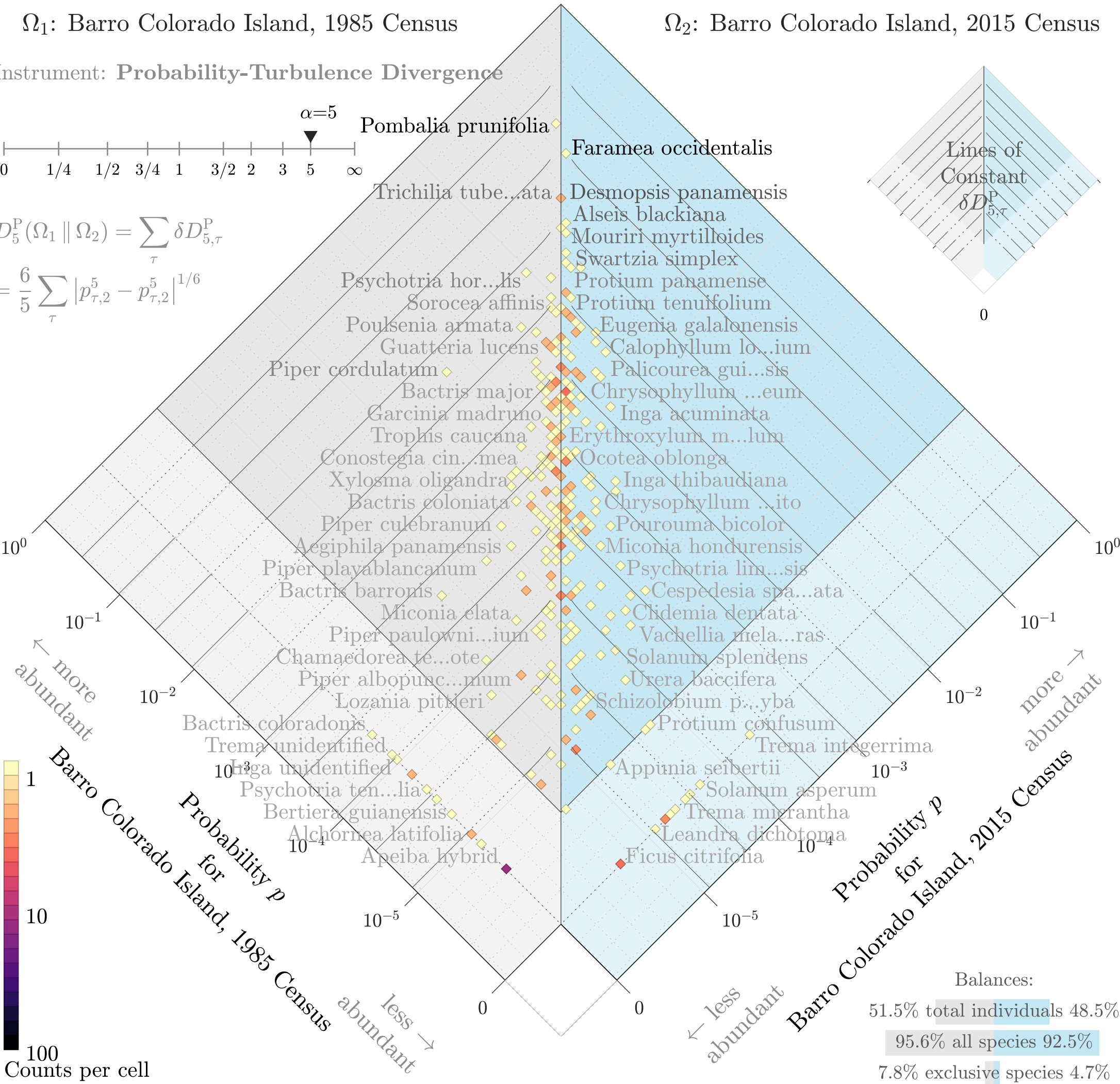


$$D_3^P(\Omega_1 \parallel \Omega_2) = \sum_{\tau} \delta D_{3,\tau}^P$$
$$= \frac{4}{3} \sum_{\tau} |p_{\tau,2}^3 - p_{\tau,1}^3|^{1/4}$$



Divergence contribution $\delta D_{3,\tau}^P(\%)$						
6	4	2	0	2	4	6
<hr/>						
Pombalia prunifolia	1	\Rightarrow	1			
	2	\Rightarrow	2	Faramea occidentalis		
Trichilia tuberculata	3	\Rightarrow	4			
	4	\Rightarrow	3	Desmopsis panamensis		
Psychotria horizontalis	8	\Rightarrow	23			
	6	\Rightarrow	5	Alseis blackiana		
Piper cordulatum	9	\Rightarrow	138			
	16	\Rightarrow	9	Protium stevensonii		
	7	\Rightarrow	7	Mouriri myrtilloides		
	10	\Rightarrow	8	Swartzia simplex		
	13	\Rightarrow	10	Garcinia recondita		
Capparidastrum frondosum	12	\Rightarrow	15			
Poulsenia armata	14	\Rightarrow	53			
	11	\Rightarrow	11	Hirtella triandra		
Sorocea affinis	15	\Rightarrow	19			
	5	\Rightarrow	6	Oenocarpus mapora		
	20	\Rightarrow	13	Protium tenuifolium		
	46	\Rightarrow	16	Eugenia galalonensis		
	19	\Rightarrow	12	Protium panamense		
Tachigali panamensis	17	\Rightarrow	30			
	39	\Rightarrow	17	Cupania seemannii		
	65	\Rightarrow	22	Calophyllum longifolium		
Virola sebifera	22	\Rightarrow	40			
	31	\Rightarrow	18	Coussarea curvigemmia		
	54	\Rightarrow	25	Xylopia macrantha		
	18	\Rightarrow	14	Rinorea sylvatica		
	26	\Rightarrow	21	Acalypha diversifolia		
	27	\Rightarrow	24	Guarea guidonia		
	38	\Rightarrow	29	Tabernaemontana arborea		
	41	\Rightarrow	31	Simarouba amara		
Beilschmiedia towarensis	21	\Rightarrow	28			
Guatteria lucens	29	\Rightarrow	50			
	93	\Rightarrow	33	Palicourea guianensis		
Cordia lasiocalyx	28	\Rightarrow	42			
Guarea bullata	34	\Rightarrow	70			
Pouteria reticulata	30	\Rightarrow	48			
	83	\Rightarrow	35	Cecropia insignis		
Pterocarpus hayesii	32	\Rightarrow	46			
Hasseltia floribunda	37	\Rightarrow	77			
	25	\Rightarrow	27	Eugenia oerstediana		
44.6%—55.4%						

Balances:
51.5% total individuals 48.5%
95.6% all species 92.5%
7.8% exclusive species 4.7%



Divergence contribution $\delta D_{5,\tau}^P$ (%)

10	5	0	5	10
Pombalia prunifolia		1 \Rightarrow 1		
		2 \Rightarrow 2	Faramea occidentalis	
Trichilia tuberculata		3 \Rightarrow 4		
		4 \Rightarrow 3	Desmopsis panamensis	
		6 \Rightarrow 5	Alseis blackiana	
		7 \Rightarrow 7	Mouriri myrtilloides	
Psychotria horizontalis		8 \Rightarrow 23		
		10 \Rightarrow 8	Swartzia simplex	
		16 \Rightarrow 9	Protium stevensonii	
Piper cordulatum		9 \Rightarrow 138		
		13 \Rightarrow 10	Garcinia recondita	
		5 \Rightarrow 6	Oenocarpus mapora	
		11 \Rightarrow 11	Hirtella triandra	
Capparidastrium frondosum		12 \Rightarrow 15		
Poulsenia armata		14 \Rightarrow 53		
Sorocea affinis		15 \Rightarrow 19		
		20 \Rightarrow 13	Protium tenuifolium	
		19 \Rightarrow 12	Protium panamense	
Tachigali panamensis		17 \Rightarrow 30		
		46 \Rightarrow 16	Eugenia galalonensis	
		18 \Rightarrow 14	Rinorea sylvatica	
		39 \Rightarrow 17	Cupania seemannii	
		31 \Rightarrow 18	Coussarea curvigemma	
Virola sebifera		22 \Rightarrow 40		
		65 \Rightarrow 22	Calophyllum longifolium	
		26 \Rightarrow 21	Acalypha diversifolia	
		54 \Rightarrow 25	Xylopia macrantha	
		27 \Rightarrow 24	Guarea guidonia	
Beilschmiedia towarensis		21 \Rightarrow 28		
		38 \Rightarrow 29	Tabernaemontana arborea	
		41 \Rightarrow 31	Simarouba amara	
		25 \Rightarrow 27	Eugenia oerstediana	
		23 \Rightarrow 20	Quararibea asterolepis	
Guatteria lucens		29 \Rightarrow 50		
Cordia lasiocalyx		28 \Rightarrow 42		
		24 \Rightarrow 26	Drypetes standleyi	
Pouteria reticulata		30 \Rightarrow 48		
		93 \Rightarrow 33	Palicourea guianensis	
Guarea bullata		34 \Rightarrow 70		
Pterocarpus hayesii		32 \Rightarrow 46		
44.2%—55.8%				

Ω_1 : Barro Colorado Island, 1985 Census

Ω_2 : Barro Colorado Island, 2015 Census

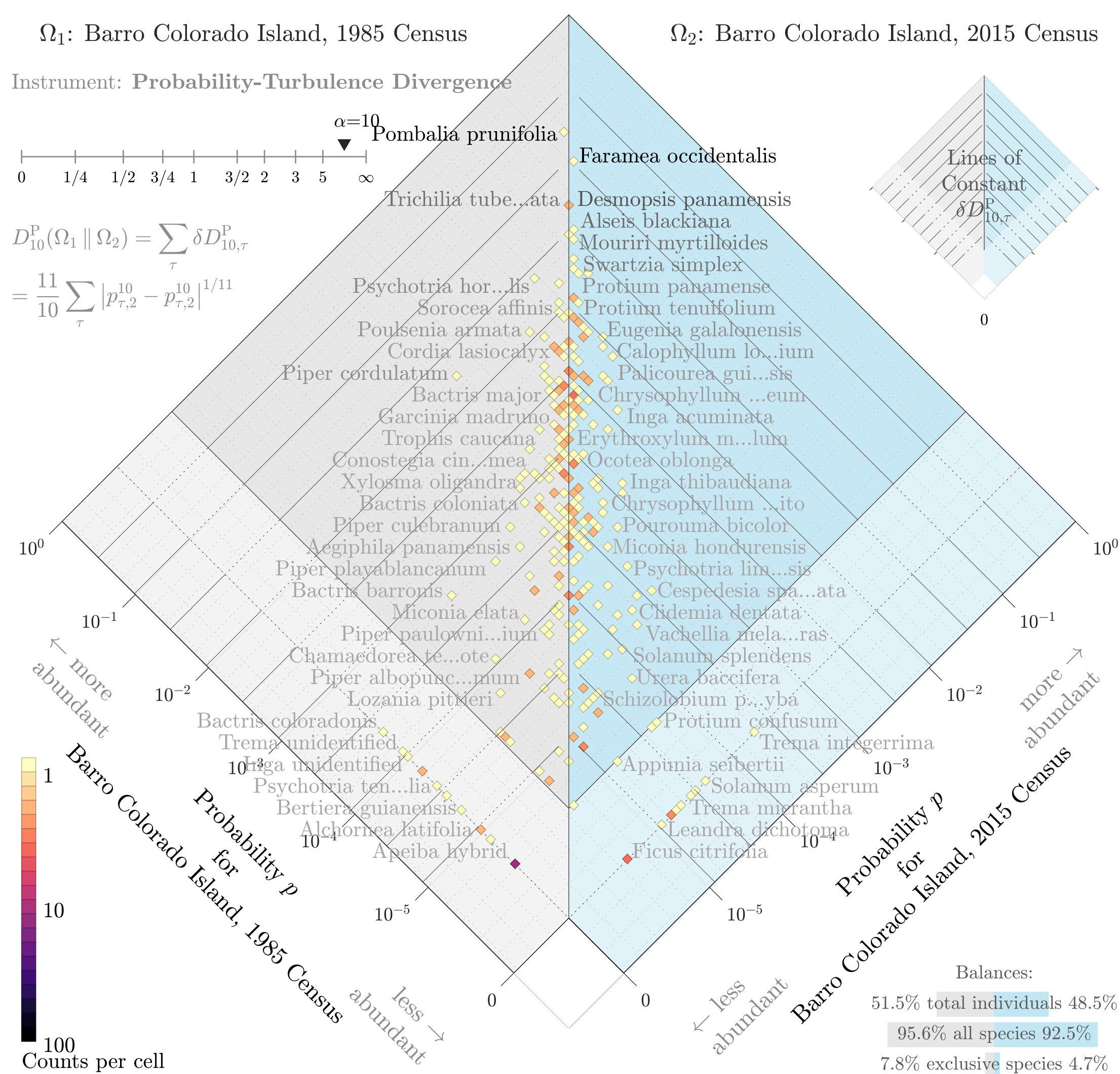
Instrument: ~~Probability-Turbulence Divergence~~

Figure 1 consists of a number line at the top and a mathematical formula below it. The number line ranges from 0 to ∞ , with tick marks at 0, $1/4$, $1/2$, $3/4$, 1, $3/2$, 2, 3, 5, and ∞ . A downward-pointing triangle is located between 5 and ∞ , with the label $\alpha=10_P$ above it. Below the number line is the formula:

$$D_{10}^P(\Omega_1 || \Omega_2) = \sum_{\tau} \delta D_{10,\tau}^P$$

$$= \frac{11}{10} \sum_{\tau} |p_{\tau,2}^{10} - p_{\tau,2}^{10}|^{1/11}$$

To the right of the formula is a gray shaded triangular region with a dashed grid. The top boundary of this region is labeled "Psy" and the bottom boundary is labeled "Pa".

Divergence contribution $\delta D_{10,\tau}^{\text{P}}(\%)$ 