


Degrees of specialism in butterflies: a method for defining levels of specialism and an evaluation of South African species

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Abstract: Butterflies may be specialists, generalists, or somewhere in between. In this paper, we propose a method for defining various categories of specialism, test the robustness of the method, and allocate all South African butterfly species to a category. The results are then evaluated and discussed.

Key words: Eurytope, generalist, mesotope, South Africa, specialist, stenotope.

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INTRODUCTION

Generalist species (eurytopes) tolerate a wide range of habitats and ecological conditions. Specialist species (stenotopes) on the other hand, tolerate only a restricted range of habitats and ecological conditions. Extreme eurytopic butterfly species would be expected to occur in nearly all types of habitats, have an open population structure (be vagile and solitary), utilise a great variety of larval resources (while not needing specialised larval resources), have large geographical ranges, and be multivoltine. In contrast, extreme stenotopic species would be expected to occur in a single niche habitat, have a closed population structure (be sedentary and colonial), utilise very limited (and often specialised) larval resources, have very small geographical ranges, and be univoltine or bivoltine. Most species are neither specialist or generalists, and we have developed a term “mesotope” for this category.

The South African butterfly fauna is relatively large (about 665 described species), contains both extreme eurytopes and extreme stenotopes and is well studied when compared to the butterflies in the rest of the Afrotropical Region (Pringle *et al.*, 1994; Woodhall, 2020; Williams, 2023). In this paper each species is scored based on ecological parameters noted above to obtain a eurytopic-stenotopic index (ESI).

METHODS AND MATERIALS

Data on habitats, population structure, adult behaviours, larval food, ant associations, geographical range and voltinism were extracted from *Afrotropical Butterflies*, a comprehensive, continuously updated resource hosted on the website of the Lepidopterists' Society of Africa (<https://metamorphosis.org.za/?p=articles&s=atb>).

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We use six ecological variables to determine the ESI of South African butterflies. A list of the variables, and the scores chosen are as follows:

- 1) Habitat.
Five biomes (simplified from Mucina & Rutherford, 2006) were considered: Forest, Savanna, Grassland, Karoo and Fynbos. Species were allocated between 1 and 5 points; one point for each biome in which they are found.
- 2) Population structure.
Two behaviors were considered: Vagile and solitary (3 points) or, Sedentary and colonial (0 points).
- 3) Larval food.
Phytophagous species.
 - Hostplant unknown or 1 plant genus only (1 point)
 - 2-5 plant genera (2 points)
 - 6-10 plant genera (3 points)
 - 11-15 plant genera (4 points)
 - 16-20 plant genera (5 points)
 - 21-25 plant genera (6 points)
 - >25 plant genera (7 points).Homopterophagous species.
 - 1 family of homopterans (1 point)
 - 1-4 families of homopterans (3 points)
 - >4 families of homopterans (7 points)Phytopredacious or predacious (on ant brood) (1 point).
- 4) Ant association.
 - Not ant dependent (3 points) or,
 - Obligate myrmecophiles (0 points).
- 5) Geographical range.
 - One province in South Africa (or in Lesotho only) (1 point)
 - Endemic to South Africa but >1 province (2 points)
 - 2-5 countries (3 points)

- 6 and more countries (but not sub-Saharan) (4 points)
 - Sub-Saharan (5 points)
 - Sub-Saharan, plus Arabia or Madagascar (6 points)
 - Sub-Saharan, plus Madagascar and Arabia (7 points)
 - Sub-Saharan, plus Madagascar, Arabia and extending beyond the Afrotropical region (8 points).
- 6) Voltinism.
- Multivoltine (3 points) or,
 - Univoltine/bivoltine (0 points).

The scored ESIs thus range from a minimum of 3 points (single biome [1 point]; sedentary and colonial [0 points]; phytopredacious or predacious (on ant brood) [1 point]; obligate myrmecophile [0 points]; one province in South Africa (or in Lesotho only) [1 point]); univoltine or bivoltine [0 points], to a maximum of 29 points (all biomes [5 points]; vagile and solitary [3 points]; utilizing more than 25 plant genera or more than 4 homopteran families as larval food [7 points]); not ant dependent [3 points]; sub-Saharan, plus Madagascar, Arabia and extending beyond the Afrotropical region [8 points]; multivoltine [3 points]).

Species were classified as extreme stenotopes (3-5 points), semi-stenotopes (6-12 points), mesotopes (13-19 points), semi-eurytopes (20-26 points), or extreme eurytopes (27-29 points).

The categories are colour coded as indicated in Fig. 1.

Code	ESI Category	Score	Total species	Percentage
1	Extreme stenotopes	3-5	157	23,5%
2	Semi-stenotopes	6-12	113	16,9%
3	Mesotopes	13-19	332	49,7%
4	Semi-eurytopes	20-26	56	8,4%
5	Extreme eurytopes	27-29	7	1,0%
Et	Extinct		2	0,3%
Ec	Exotic		1	0,1%
			668	

Figure 1 – Proportion of South African butterfly species by ESI Category.

While the bracketing figures were retrospectively adjusted slightly to suit the geometry of the resulting ESI graph (Fig. 2), the scores, and the weighting of each category, are arbitrary. To test the robustness of the ESI categories for individual species, twelve tests were undertaken, as follows:

1. The scores for “Habitat” were doubled and the ESI scores were adjusted to match (as closely as possible) the relevant percentages in Fig. 1. Each species that consequently moved to another category lost one point in a “reliability” score. The above process was repeated for “Population structure”, “Larval food”, “Ant

association”, “Range” and “Voltinism” (6 tests in total).

2. A similar series of six tests were repeated, but in this case, instead of doubling the score for each criterion, the scores were successively deleted. As above, the ESI scores were adjusted to match (as closely as possible) the relevant species totals in Fig. 1, and each species that consequently moved to another category lost one point in a “reliability” score.

The final score - a maximum of 13 (12 tests, plus the initial result) and a minimum of 1 (the original entry) – was divided by the total number of results (13) to form a percentage. This “Reliability Index” is included in Table 1. It can be seen from the resulting Reliability Index scores, that the allocation of a species to one of the ESI categories is not greatly affected by either doubling the score for a single ecological variable, or omitting an ecological variable altogether.

RESULTS

The eurytopic-stenotopic indices (ESIs) for the South African butterfly species are given in Table 1. The distribution of species within the eurytopic-stenotopic spectrum, and within butterfly families, is summarised in Table 2. The relevant data extracted from the South African Lepidoptera Conservation Assessment (SALCA) report is summarised in Table 3.

The following graph (Fig. 2) is a plot of the ESI score against the number of species that have that score (red line). The spikes in the curve are a result of mathematical rather than biological discontinuities, so a smoothed “best fit” curve was produced, by trial and error, to model the ESI distribution (black line).

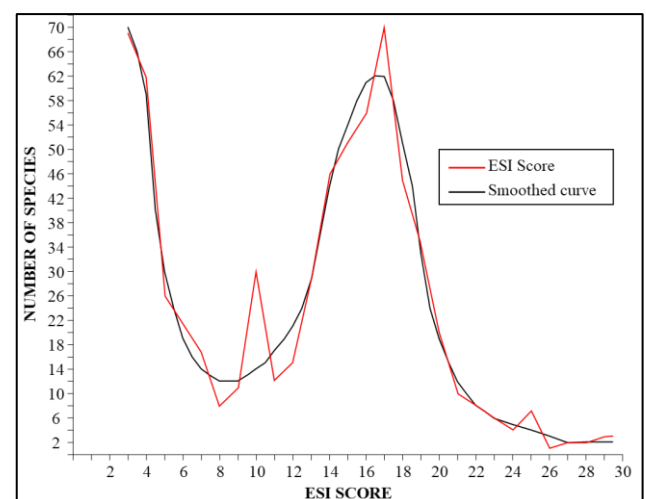


Figure 2 – Number of South African butterfly species by ESI score.

The graph on the next page (Fig. 3) takes the “smoothed” ESI curve (above) and indicates the various ESI categories.

The shape of the curve for mesotopes and eurytopes strongly resembles a normal probability distribution, and this is illustrated in Fig. 4 (below), which shows the ESI curve overlaid on a generic histogram.

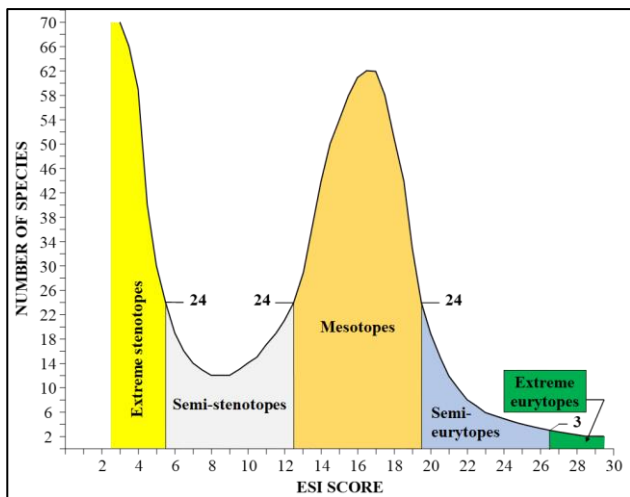


Figure 3 – Number of South African butterfly species by ESI category.

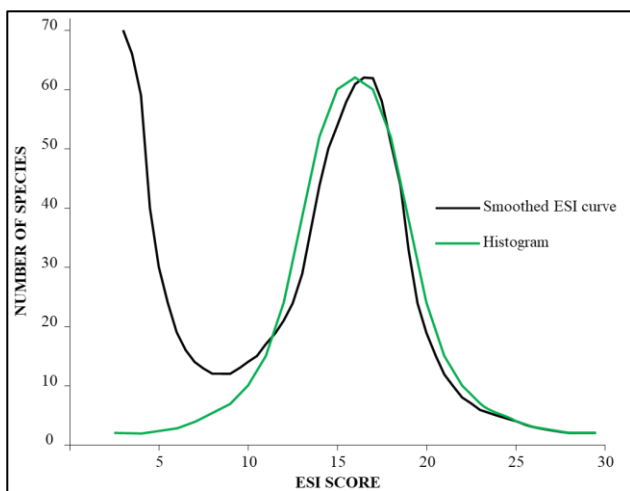


Figure 4 – Smoothed ESI curve compared to generic histogram.

It might be expected that the degree of specialisation in butterflies would follow a normal probability distribution, so that extreme specialists and extreme generalists would occupy the tails of the curve and most species would fit somewhere in between.

For mesotopes and eurytopes this seems to be the case. A feature of the graph, however, is the large number of specialist South African species. The number of species with ESI scores that exceed the average value for mesotopes (greater than 16) is 269. If the ESI curve was symmetrical about the mesotope mean, we would expect to

have double this number, 538 species in South Africa. The extent to which this number is exceeded (120 species or 22,3%) reflects the overrepresentation of stenotopes and semi-stenotopes in South Africa.

CONCLUSIONS

Butterflies may be categorised as being, to varying degrees, specialists or generalists. We present a rational method of calculating the level of specialisation of a species and allocating it to one of five groups: extreme specialists (stenotopes); moderate specialists (semi-stenotopes); average (mesotopes); moderate generalists (semi-eurytopes) and extreme generalists (eurytopes).

Specialist South African species (stenotopes and semi-stenotopes) constitute 270 species (40%), which is a far higher percentage than for species occupying the generalist end of the spectrum. The generalists (eurytopes and semi-eurytopes) account for 63 species (10%).

It appears that being a specialist (stenotope) presents an evolutionary advantage as far as the creation of new species is concerned. The price to be paid for this is that of the 86 South African butterfly species listed as being of conservation concern (Table 3), almost 90% are either stenotopes or semi-stenotopes.

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Table 1 – Eurytopic-stenotopic indices (ESIs) for the South African butterfly species.

Species	Habitat						ESI	Code	ESI Category	Reliability Index
	Habitat	Population structure	Larval Food	Ant association	Range	Volturnism				
Hesperiidae										
Coeliadinae										
<i>Coeliades anchises</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Coeliades forestan</i>	3	3	7	3	6	3	25	4	Semi-eurytope	92,3%
<i>Coeliades keithloa</i>	1	3	2	3	1	3	13	3	Mesotope	69,2%
<i>Coeliades libeon</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Coeliades lorenzo</i>	2	3	2	3	2	3	15	3	Mesotope	100,0%
<i>Coeliades pisistratus</i>	2	3	4	3	5	3	20	4	Semi-eurytope	84,6%
Hesperiinae										
<i>Acada biseriata</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Acleros mackenii</i>	1	3	3	3	5	3	18	3	Mesotope	100,0%
<i>Afrogegenes hottentota</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Afrogegenes letterstedti</i>	4	3	4	3	6	3	23	4	Semi-eurytope	100,0%
<i>Afrogegenes oca</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Andronymus caesar</i>	1	3	4	3	5	3	19	3	Mesotope	84,6%
<i>Andronymus neander</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Artitropa erimys</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Astictopterus inornatus</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Borbo borbonica</i>	1	3	3	3	7	3	20	4	Semi-eurytope	84,6%
<i>Borbo detecta</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Borbo fallax</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%
<i>Borbo fatuellus</i>	2	3	3	3	6	3	20	4	Semi-eurytope	92,3%
<i>Borbo ferruginea</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Borbo lugens</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Borbo micans</i>	1	3	1	3	5	3	16	3	Mesotope	92,3%
<i>Dotta callicles</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Fresna nyssae</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Gegenes pumilio</i>	2	3	2	3	8	3	21	4	Semi-eurytope	92,3%
<i>Kedestes lenis</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Kedestes lepenula</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Kedestes macomo</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Kedestes niveostriga</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Moltena fiara</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Nervia chaca</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Nervia mohozutza</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Nervia nerva</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Nervia wallengrenii</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Parnara monasi</i>	1	3	3	3	5	3	18	3	Mesotope	100,0%
<i>Parosmodes morantii</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Pelopidas mathias</i>	2	3	4	3	8	3	23	4	Semi-eurytope	100,0%
<i>Pelopidas thrax</i>	2	3	3	3	8	3	22	4	Semi-eurytope	92,3%
<i>Platylesches ayresii</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%
<i>Platylesches dolomitica</i>	2	3	1	3	2	0	11	2	Semi-stenotope	92,3%
<i>Platylesches galesa</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Platylesches moritili</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Platylesches neba</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Platylesches picanini</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%

<i>Platylesches robustus</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Platylesches tina</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Teniorhinus harona</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Torbenlarsenia gemella</i>	2	3	3	3	7	3	21	4	Semi-eurytope	92,3%
<i>Torbenlarsenia holtzi</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%
<i>Trida barberae</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Trida sarahae</i>	1	3	1	3	1	3	12	2	Semi-stenotope	92,3%
<i>Tsitana dicksoni</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Tsitana tsita</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Tsitana tulbagha</i>	2	3	2	3	2	3	15	3	Mesotope	100,0%
<i>Tsitana uitenhaga</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Zenonia zeno</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Zophopetes dysmephila</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
Heteropterinae										
<i>Metisella aegipan</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Metisella malgacha</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Metisella meninx</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Metisella metis</i>	2	3	2	3	3	3	16	3	Mesotope	100,0%
<i>Metisella syrinx</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Willema willemi</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
Pyrginae										
<i>Agyllia agylla</i>	2	3	2	3	3	3	16	3	Mesotope	100,0%
<i>Agyllia asterodia</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Ernsta colotes</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Ernsta confusa</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Ernsta delagoae</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Ernsta depauperata</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Ernsta dromus</i>	2	3	2	3	2	3	15	3	Mesotope	100,0%
<i>Ernsta nanus</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Ernsta paula</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Ernsta sataspes</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Ernsta secessus</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Gomalia elma</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Spialia ferax</i>	5	3	2	3	4	3	20	4	Semi-eurytope	76,9%
<i>Spialia mafa</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Spialia spio</i>	4	3	4	3	6	3	23	4	Semi-eurytope	100,0%
Tagiadinae										
<i>Abantis bicolor</i>	2	3	1	3	1	3	13	3	Mesotope	69,2%
<i>Abantis canopus</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Abantis levubu</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Abantis paradisea</i>	1	3	4	3	4	3	18	3	Mesotope	100,0%
<i>Abantis pillaana</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Abantis tettensis</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Abantis venosa</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Alenia namaqua</i>	1	3	1	3	3	0	11	2	Semi-stenotope	92,3%
<i>Alenia sandaster</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Apallaga mokeezi</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Eagris nottoana</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Eretis djaelaelae</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Eretis umbra</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Kobelana kobela</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Kobelana krooni</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Sarangesa motozi</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Sarangesa phidyle</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%
<i>Sarangesa ruona</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%
<i>Sarangesa seineri</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%

<i>Tagiades flesus</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
Lycaenidae										
Aphnaeinae										
<i>Aloeides almeida</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides apicalis</i>	2	0	2	0	2	0	6	2	Semi-stenotope	84,6%
<i>Aloeides aranda</i>	3	0	1	0	4	0	8	2	Semi-stenotope	100,0%
<i>Aloeides arida</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides bamptoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides barbarae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides barklyi</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides braueri</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides caffrariae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides caledoni</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides carolynnae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides clarki</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides damarensis</i>	2	0	3	0	4	3	12	2	Semi-stenotope	53,8%
<i>Aloeides dentatis</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides depicta</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides dicksoni</i>	2	0	1	0	1	0	4	1	Extreme stenotope	100,0%
<i>Aloeides dryas</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides egerides</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides gowani</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides henningi</i>	2	0	2	0	2	0	6	2	Semi-stenotope	84,6%
<i>Aloeides juana</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides kaplani</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides lutescens</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides macmasteri</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides maluti</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides margaretae</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides mbuluensis</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides merces</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides molomo</i>	2	0	2	0	4	0	8	2	Semi-stenotope	100,0%
<i>Aloeides monticola</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides nollothi</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides nubilus</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides oreas</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides pallida</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides penningtoni</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides pierus</i>	3	0	1	0	2	0	6	2	Semi-stenotope	92,3%
<i>Aloeides pringlei</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides quickelbergei</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides rileyi</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides rossouwi</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides simplex</i>	1	0	1	0	3	0	5	1	Extreme stenotope	84,6%
<i>Aloeides stvensoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Aloeides susanae</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides swanepoeli</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides taikosama</i>	2	0	1	0	3	0	6	2	Semi-stenotope	84,6%
<i>Aloeides thyra</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Aloeides titei</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aloeides trimeni</i>	3	0	2	0	3	0	8	2	Semi-stenotope	100,0%
<i>Aloeides vansoni</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Aphnaeus hutchinsonii</i>	1	3	2	0	3	0	9	2	Semi-stenotope	100,0%
<i>Argyraspodes argyraspis</i>	2	3	1	0	3	0	9	2	Semi-stenotope	100,0%
<i>Axiocerses amanga</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%
<i>Axiocerses coalescens</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%

<i>Axiocerses croesus</i>	1	3	1	3	1	3	12	2	Semi-stenotope	92,3%
<i>Axiocerses tjoane</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Chloroselas mazoensis</i>	1	0	1	0	3	0	5	1	Extreme stenotope	84,6%
<i>Chloroselas pseudozeritis</i>	1	0	2	0	4	3	10	2	Semi-stenotope	84,6%
<i>Chrysoritis adonis</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis aethon</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis aridus</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis aureus</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis azurius</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis beaufortia</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis beulah</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis blencathrae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis braueri</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis brooksi</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis chrysantas</i>	1	0	1	0	3	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis chrysaor</i>	4	0	3	0	2	3	12	2	Semi-stenotope	61,5%
<i>Chrysoritis daphne</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis dicksoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis endymion</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis felthami</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis irene</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis lycegenes</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis lyncurium</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis lyndseyae</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis midas</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis natalensis</i>	1	0	2	0	2	3	8	2	Semi-stenotope	92,3%
<i>Chrysoritis nigricans</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis oreas</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis orientalis</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis palmus</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis pan</i>	2	0	3	0	2	0	7	2	Semi-stenotope	92,3%
<i>Chrysoritis pelion</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis penningtoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis perseus</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis phosphor</i>	1	0	1	0	2	3	7	2	Semi-stenotope	92,3%
<i>Chrysoritis plutus</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis pyramus</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis pyroeis</i>	1	0	2	0	2	0	5	1	Extreme stenotope	84,6%
<i>Chrysoritis rileyi</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis swanepoeli</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis thysbe</i>	1	0	3	0	2	0	6	2	Semi-stenotope	92,3%
<i>Chrysoritis trimeni</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis turneri</i>	2	0	2	0	2	0	6	2	Semi-stenotope	84,6%
<i>Chrysoritis uranus</i>	1	0	2	0	1	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis violescens</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Chrysoritis zeuxo</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Chrysoritis zonarius</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Cigaritis ella</i>	1	3	2	0	4	3	13	3	Mesotope	69,2%
<i>Cigaritis mozambica</i>	2	3	2	0	4	3	14	3	Mesotope	84,6%
<i>Cigaritis namaquus</i>	1	3	1	0	3	0	8	2	Semi-stenotope	92,3%
<i>Cigaritis natalensis</i>	1	3	3	0	4	3	14	3	Mesotope	76,9%
<i>Cigaritis phanes</i>	1	3	2	0	3	3	12	2	Semi-stenotope	69,2%
<i>Crudaria capensis</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Crudaria leroma</i>	1	0	2	3	4	3	13	3	Mesotope	69,2%
<i>Crudaria wykehami</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Erikssonia edgei</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%

<i>Phasis braueri</i>	1	3	2	0	2	0	8	2	Semi-stenotope	92,3%
<i>Phasis clavum</i>	1	3	2	0	3	0	9	2	Semi-stenotope	100,0%
<i>Phasis pringlei</i>	1	3	2	0	1	0	7	2	Semi-stenotope	92,3%
<i>Phasis thero</i>	1	3	2	0	2	0	8	2	Semi-stenotope	92,3%
<i>Trimenia argyropлага</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Trimenia macmasteri</i>	2	0	1	0	3	0	6	2	Semi-stenotope	84,6%
<i>Trimenia malagrida</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Trimenia wallengrenii</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Trimenia wykehami</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Tylopaedia sardonys</i>	2	0	2	0	3	0	7	2	Semi-stenotope	100,0%
Lycaeninae										
<i>Lafron clarki</i>	2	3	1	3	2	3	14	3	Mesotope	92,3%
<i>Lafron orus</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
Miletinae										
<i>Aslauga australis</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Lachnocnema bibulus</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Lachnocnema durbani</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Lachnocnema laches</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Thestor barbatus</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor basuta</i>	2	0	1	0	3	0	6	2	Semi-stenotope	84,6%
<i>Thestor brachycera</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor braunsi</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Thestor calviniae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor camdeboo</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor claassensi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor coetzeri</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor compassbergae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor dicksoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor dryburghi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor holmesi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor kaplani</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor montanus</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor murrayi</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Thestor overbergensis</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor penningtoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor petra</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor pictus</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor pringlei</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Thestor protumnus</i>	2	0	1	0	3	0	6	2	Semi-stenotope	84,6%
<i>Thestor rileyi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor rooibergensis</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor rossouwi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor stepheni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor strutti</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor vansoni</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Thestor yildizae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
Polyommatae										
<i>Actizera lucida</i>	2	3	5	3	6	3	22	4	Semi-eurytope	100,0%
<i>Actizera stellata</i>	1	3	2	3	4	0	13	3	Mesotope	76,9%
<i>Anthene amarah</i>	1	3	2	3	8	3	20	4	Semi-eurytope	76,9%
<i>Anthene crawshayi</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
<i>Anthene definita</i>	5	3	6	3	4	3	24	4	Semi-eurytope	92,3%
<i>Anthene dulcis</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%
<i>Anthene larydas</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Anthene lemnos</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Anthene lindae</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%

<i>Anthene liodes</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Anthene livida</i>	3	3	2	3	4	3	18	3	Mesotope	100,0%
<i>Anthene millari</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Anthene minima</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Anthene otacilia</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Anthene princeps</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%
<i>Anthene talboti</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Azanus jesous</i>	2	3	3	3	8	3	22	4	Semi-eurytope	92,3%
<i>Azanus mirza</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Azanus moriqua</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Azanus natalensis</i>	1	3	1	3	5	3	16	3	Mesotope	92,3%
<i>Azanus ubaldus</i>	2	3	2	3	8	3	21	4	Semi-eurytope	92,3%
<i>Brephidium metophis</i>	3	3	2	3	3	3	17	3	Mesotope	100,0%
<i>Cacyreus dicksoni</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%
<i>Cacyreus fracta</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Cacyreus lingeus</i>	2	3	4	3	6	3	21	4	Semi-eurytope	100,0%
<i>Cacyreus marshalli</i>	3	3	1	3	4	3	17	3	Mesotope	100,0%
<i>Cacyreus virilis</i>	2	3	3	3	6	3	20	4	Semi-eurytope	92,3%
<i>Cupidopsis cissus</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Cupidopsis jobates</i>	2	3	2	3	7	3	20	4	Semi-eurytope	84,6%
<i>Eicochrysops hippocrates</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Eicochrysops messapus</i>	3	3	2	3	4	3	18	3	Mesotope	100,0%
<i>Euchrysops barkeri</i>	1	3	3	3	5	3	18	3	Mesotope	100,0%
<i>Euchrysops dolorosa</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Euchrysops malathana</i>	1	3	3	3	7	3	20	4	Semi-eurytope	84,6%
<i>Euchrysops osiris</i>	3	3	2	3	8	3	22	4	Semi-eurytope	92,3%
<i>Euchrysops subpallida</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Freyeria trochylus</i>	3	3	2	3	8	3	22	4	Semi-eurytope	92,3%
<i>Harpendyreus noquasa</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Harpendyreus notoba</i>	3	3	1	3	2	3	15	3	Mesotope	100,0%
<i>Harpendyreus tsomo</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Lampides boeticus</i>	5	3	7	3	8	3	29	5	Extreme eurytope	100,0%
<i>Lepidochrysops asteris</i>	2	0	2	0	2	0	6	2	Semi-stenotope	84,6%
<i>Lepidochrysops australis</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops bacchus</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Lepidochrysops badhami</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops balli</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops braueri</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops dukei</i>	2	0	1	0	2	0	5	1	Extreme stenotope	84,6%
<i>Lepidochrysops frederikeae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops glauca</i>	1	3	2	0	4	0	10	2	Semi-stenotope	92,3%
<i>Lepidochrysops grahami</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops gydoae</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops hypopolia</i>	Extinct							Et	Extinct	
<i>Lepidochrysops ignota</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops irvingi</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops jamesi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops jefferyi</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops ketsi</i>	3	0	2	0	2	0	7	2	Semi-stenotope	92,3%
<i>Lepidochrysops lerothodi</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops letsea</i>	2	0	2	0	3	0	7	2	Semi-stenotope	100,0%
<i>Lepidochrysops littoralis</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops loewensteini</i>	1	0	1	0	2	0	4	1	Extreme stenotope	100,0%
<i>Lepidochrysops lotana</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops mcgregori</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%
<i>Lepidochrysops methymna</i>	1	0	1	0	1	0	3	1	Extreme stenotope	100,0%

<i>Alaena amazoula</i>	2	0	1	3	4	3	13	3	Mesotope	69,2%
<i>Alaena margaritacea</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Baliochila aslanga</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%
<i>Baliochila lipara</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Cnodontes penningtoni</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Deloneura immaculata</i>	Extinct							Et	Extinct	
<i>Deloneura millari</i>	1	3	1	0	3	3	11	2	Semi-stenotope	92,3%
<i>Durbania amakosa</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Durbania limbata</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Durbaniella clarki</i>	2	3	1	3	2	0	11	2	Semi-stenotope	92,3%
<i>Durbaniopsis saga</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Ornipholidotos peucetia</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Pentila tropicalis</i>	1	3	1	3	4	0	12	2	Semi-stenotope	84,6%
<i>Teriomima zuluana</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
Theclinae										
<i>Capys alpheus</i>	3	3	1	3	2	3	15	3	Mesotope	100,0%
<i>Capys disjunctus</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Capys penningtoni</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Deudorix antalus</i>	5	3	7	3	7	3	28	5	Extreme eurytope	92,3%
<i>Deudorix dariaves</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Deudorix dinochares</i>	2	3	6	3	7	3	24	4	Semi-eurytope	100,0%
<i>Deudorix dinomenes</i>	2	3	1	3	5	3	17	3	Mesotope	92,3%
<i>Deudorix diocles</i>	2	3	4	3	4	3	19	3	Mesotope	84,6%
<i>Deudorix vansoni</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Hemolaus caeculus</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Hypolycaena buxtoni</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Hypolycaena lochmophila</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Hypolycaena philippus</i>	2	3	5	3	7	3	23	4	Semi-eurytope	100,0%
<i>Iolaus aemulus</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Iolaus alienus</i>	1	3	2	3	5	0	14	3	Mesotope	84,6%
<i>Iolaus aphnaeoides</i>	1	3	2	3	1	0	10	2	Semi-stenotope	100,0%
<i>Iolaus diametra</i>	2	3	2	3	3	0	13	3	Mesotope	69,2%
<i>Iolaus lulua</i>	2	3	2	3	3	0	13	3	Mesotope	69,2%
<i>Iolaus mimosae</i>	2	3	2	3	4	0	14	3	Mesotope	84,6%
<i>Iolaus nasisii</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Iolaus pallene</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Iolaus sidus</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Iolaus silarus</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Iolaus silas</i>	2	3	2	3	2	3	15	3	Mesotope	100,0%
<i>Iolaus trimeni</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Leptomyrina gorgias</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Leptomyrina henningi</i>	2	3	2	3	3	3	16	3	Mesotope	100,0%
<i>Leptomyrina hirundo</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Leptomyrina lara</i>	3	3	2	3	3	3	17	3	Mesotope	100,0%
<i>Myrina dermaptera</i>	2	3	1	3	5	3	17	3	Mesotope	92,3%
<i>Myrina silenus</i>	3	3	2	3	6	3	20	4	Semi-eurytope	76,9%
<i>Stugeta bowkeri</i>	3	3	4	3	4	3	20	4	Semi-eurytope	76,9%
<i>Stugeta subinfuscata</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%
Nymphalidae										
Biblidinae										
<i>Byblia anvatará</i>	2	3	2	3	7	3	20	4	Semi-eurytope	84,6%
<i>Byblia ilithyia</i>	1	3	2	3	8	3	20	4	Semi-eurytope	76,9%
<i>Eurytela dryope</i>	2	3	3	3	7	3	21	4	Semi-eurytope	92,3%
<i>Eurytela hiarbas</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
<i>Sevenia boisduvali</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Sevenia morantii</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%

<i>Sevenia natalensis</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Sevenia rosa</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
Charaxinae										
<i>Charaxes achaemenes</i>	1	3	3	3	5	3	18	3	Mesotope	100,0%
<i>Charaxes bohemani</i>	1	3	4	3	4	3	18	3	Mesotope	100,0%
<i>Charaxes brutus</i>	2	3	4	3	5	3	20	4	Semi-eurytope	84,6%
<i>Charaxes candiope</i>	2	3	1	3	5	3	17	3	Mesotope	92,3%
<i>Charaxes castor</i>	2	3	6	3	5	3	22	4	Semi-eurytope	92,3%
<i>Charaxes cithaeron</i>	2	3	5	3	4	3	20	4	Semi-eurytope	84,6%
<i>Charaxes druceanus</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Charaxes etesipe</i>	2	3	4	3	5	3	20	4	Semi-eurytope	84,6%
<i>Charaxes ethalion</i>	2	3	5	3	4	3	20	4	Semi-eurytope	84,6%
<i>Charaxes guderiana</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Charaxes jahlnusa</i>	3	3	3	3	4	3	19	3	Mesotope	84,6%
<i>Charaxes karkloof</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Charaxes marieps</i>	1	3	1	3	1	3	12	2	Semi-stenotope	92,3%
<i>Charaxes pelias</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Charaxes phaeus</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Charaxes pondoensis</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Charaxes protoclea</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Charaxes saturnus</i>	1	3	7	3	4	3	21	4	Semi-eurytope	84,6%
<i>Charaxes vansoni</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Charaxes varanes</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Charaxes wakefieldi</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Charaxes xiphares</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Charaxes zoolina</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
Cyrestinae										
<i>Cyrestis camillus</i>	1	3	3	3	6	3	19	3	Mesotope	92,3%
Danainae										
<i>Amauris albimaculata</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Amauris echeria</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Amauris niavius</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%
<i>Amauris ochlea</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Danaus chrysippus</i>	5	3	7	3	8	3	29	5	Extreme eurytope	100,0%
<i>Tirumala petiverana</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
Heliconiinae										
<i>Acraea acara</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Acraea acrita</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Acraea aganice</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Acraea aglaonice</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea anemosa</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Acraea axina</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea barberi</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Acraea boopis</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea caldarena</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea cerasa</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea egina</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
<i>Acraea horta</i>	2	3	2	3	1	3	14	3	Mesotope	100,0%
<i>Acraea lygus</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Acraea machequena</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Acraea natalica</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Acraea neobule</i>	5	3	4	3	7	3	25	4	Semi-eurytope	100,0%
<i>Acraea nohara</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Acraea oncaea</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea petraea</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Acraea rabbaiae</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%

<i>Acraea satis</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Acraea stenobea</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Acraea trimeni</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Acraea violarum</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Lachnoptera ayresii</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Pardopsis punctatissima</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
<i>Phalanta eurytis</i>	1	3	4	3	5	3	19	3	Mesotope	84,6%
<i>Phalanta phalantha</i>	2	3	5	3	8	3	24	4	Semi-eurytope	100,0%
<i>Telchinia alalonga</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Telchinia anacreon</i>	2	3	2	3	3	3	16	3	Mesotope	100,0%
<i>Telchinia burni</i>	2	0	2	3	3	3	13	3	Mesotope	61,5%
<i>Telchinia cabira</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Telchinia encendon</i>	2	3	3	3	7	3	21	4	Semi-eurytope	92,3%
<i>Telchinia esebria</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Telchinia igola</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Telchinia induna</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%
<i>Telchinia rahira</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Telchinia serena</i>	3	3	4	3	7	3	23	4	Semi-eurytope	100,0%
Libytheinae										
<i>Libythea laius</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
Limenitidinae										
<i>Cymothoe alcimeda</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Cymothoe coranus</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Euphaedra neophron</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Euryphura achlys</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Hamanumida daedalus</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%
<i>Neptis goochii</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Neptis jordani</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Neptis kiriakoffi</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Neptis laeta</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Neptis saclava</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Neptis trigonophora</i>	1	3	3	3	5	3	18	3	Mesotope	100,0%
<i>Pseudacraea boisduvalii</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Pseudacraea eurytus</i>	1	3	3	3	5	3	18	3	Mesotope	100,0%
<i>Pseudacraea lucretia</i>	2	3	4	3	6	3	21	4	Semi-eurytope	100,0%
Nymphalinae										
<i>Antanartia schaeneia</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Catacroptera cloanthe</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Hypolimnas anthedon</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Hypolimnas deceptor</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%
<i>Hypolimnas misippus</i>	3	3	5	3	8	3	25	4	Semi-eurytope	100,0%
<i>Junonia elgiva</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Junonia hierta</i>	3	3	4	3	8	3	24	4	Semi-eurytope	100,0%
<i>Junonia natalica</i>	1	3	4	3	4	3	18	3	Mesotope	100,0%
<i>Junonia oenone</i>	2	3	4	3	7	3	22	4	Semi-eurytope	100,0%
<i>Junonia orithya</i>	2	3	6	3	8	3	25	4	Semi-eurytope	92,3%
<i>Precis antilope</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%
<i>Precis archesia</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Precis ceryne</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Precis octavia</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Precis tugela</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Protogoniomorpha nebulosa</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Protogoniomorpha parhassus</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Vanessa cardui</i>	5	3	7	3	8	3	29	5	Extreme eurytope	100,0%
<i>Vanessa dimorphica</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Vanessa hippomene</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%

Satyrinae										
<i>Aeropetes tulbaghia</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Bicyclus anynana</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Bicyclus ena</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Bicyclus safitza</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%
<i>Brakefieldia perspicua</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Cassionympha camdeboo</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Cassionympha cassius</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Cassionympha detecta</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Cassionympha perissinottoi</i>	1	3	1	3	1	3	12	2	Semi-stenotope	92,3%
<i>Coenryra aurantiaca</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Coenryra hebe</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Coenryra rufiplaga</i>	1	3	1	3	1	3	12	2	Semi-stenotope	92,3%
<i>Coenryopsis natalii</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Dingana alaedeus</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Dingana alticola</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Dingana angusta</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Dingana clara</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Dingana dingana</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Dingana fraterna</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Dingana jerinae</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Dira clytus</i>	2	3	3	3	2	0	13	3	Mesotope	69,2%
<i>Dira jansei</i>	1	0	2	3	2	0	8	2	Semi-stenotope	100,0%
<i>Dira oxylus</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Dira swanepoeli</i>	1	0	2	3	1	0	7	2	Semi-stenotope	92,3%
<i>Gnophodes diversa</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Melampias huebneri</i>	2	3	2	3	2	0	12	2	Semi-stenotope	76,9%
<i>Melanitis leda</i>	2	3	6	3	8	3	25	4	Semi-eurytope	92,3%
<i>Neita durbani</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Neita extensa</i>	1	3	1	3	3	0	11	2	Semi-stenotope	92,3%
<i>Neita lotenia</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Neita neita</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Paralethe dendrophilus</i>	1	3	2	3	2	0	11	2	Semi-stenotope	92,3%
<i>Paternympha loxophthalma</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Paternympha narycia</i>	1	3	1	3	3	0	11	2	Semi-stenotope	92,3%
<i>Physcaeneura panda</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Pseudonympha gaika</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha hippia</i>	1	3	2	3	2	0	11	2	Semi-stenotope	92,3%
<i>Pseudonympha machacha</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha magoides</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha magus</i>	1	3	2	3	2	0	11	2	Semi-stenotope	92,3%
<i>Pseudonympha paludis</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha paragaika</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Pseudonympha penningtoni</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha poetula</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha southeyi</i>	3	3	1	3	2	0	12	2	Semi-stenotope	84,6%
<i>Pseudonympha swanepoeli</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Pseudonympha trimenii</i>	3	3	1	3	2	0	12	2	Semi-stenotope	84,6%
<i>Pseudonympha varii</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Serradinga bowkeri</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Serradinga clarki</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Serradinga kammanassiensis</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Stygionympha curlei</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Stygionympha dicksoni</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Stygionympha geraldii</i>	1	3	1	3	1	0	9	2	Semi-stenotope	100,0%
<i>Stygionympha irrorata</i>	2	3	1	3	3	0	12	2	Semi-stenotope	76,9%

<i>Stygionympha robertsoni</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Stygionympha scotina</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Stygionympha vansoni</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Stygionympha vigilans</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%
<i>Stygionympha wichgrafi</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%
<i>Tarsocera cassina</i>	1	3	2	3	1	3	13	3	Mesotope	69,2%
<i>Tarsocera cassus</i>	2	3	2	3	2	3	15	3	Mesotope	100,0%
<i>Tarsocera dicksoni</i>	2	3	1	3	2	0	11	2	Semi-stenotope	92,3%
<i>Tarsocera fulvina</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Tarsocera imitator</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Tarsocera namaquensis</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Tarsocera southeyae</i>	1	3	1	3	2	0	10	2	Semi-stenotope	100,0%
<i>Torynesis hawequas</i>	2	3	1	3	2	0	11	2	Semi-stenotope	92,3%
<i>Torynesis magna</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Torynesis mintha</i>	1	0	1	3	2	0	7	2	Semi-stenotope	92,3%
<i>Torynesis orangica</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Torynesis pringlei</i>	1	0	1	3	1	0	6	2	Semi-stenotope	84,6%
<i>Ypthima antennata</i>	2	3	1	3	5	0	14	3	Mesotope	84,6%
<i>Ypthima asterope</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%
<i>Ypthima condamini</i>	2	3	1	3	5	3	17	3	Mesotope	92,3%
<i>Ypthima granulosa</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%
<i>Ypthima impura</i>	1	3	1	3	5	3	16	3	Mesotope	92,3%
Papilionidae										
Papilioninae										
<i>Graphium angolanus</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Graphium antheus</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Graphium colonna</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Graphium leonidas</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Graphium morania</i>	1	3	2	3	3	3	15	3	Mesotope	92,3%
<i>Graphium policenes</i>	1	3	3	3	4	3	17	3	Mesotope	100,0%
<i>Graphium porthaon</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Papilio constantinus</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Papilio dardanus</i>	1	3	3	3	6	3	19	3	Mesotope	92,3%
<i>Papilio demodocus</i>	5	3	5	3	8	3	27	5	Extreme eurytope	84,6%
<i>Papilio echerioides</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Papilio euphranor</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%
<i>Papilio nireus</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%
<i>Papilio ophidicephalus</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
Pieridae										
Coliadinae										
<i>Catopsilia florella</i>	5	3	3	3	8	3	25	4	Semi-eurytope	92,3%
<i>Colias electo</i>	1	3	4	3	4	3	18	3	Mesotope	100,0%
<i>Terias brigitta</i>	2	3	3	3	8	3	22	4	Semi-eurytope	92,3%
<i>Terias desjardinsii</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Terias floricola</i>	1	3	3	3	6	3	19	3	Mesotope	92,3%
<i>Terias hecabe</i>	3	3	6	3	8	3	26	4	Semi-eurytope	76,9%
Pierinae										
<i>Afrodryas leda</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%
<i>Appias epaphia</i>	2	3	3	3	6	3	20	4	Semi-eurytope	92,3%
<i>Appias sabina</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%
<i>Belenois aurota</i>	4	3	2	3	8	3	23	4	Semi-eurytope	100,0%
<i>Belenois creona</i>	2	3	3	3	6	3	20	4	Semi-eurytope	92,3%
<i>Belenois gidica</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%
<i>Belenois thysa</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%
<i>Belenois zochalia</i>	2	3	3	3	4	3	18	3	Mesotope	100,0%
<i>Colotis annae</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%

<i>Colotis antevippe</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%	
<i>Colotis auxo</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%	
<i>Colotis calais</i>	2	3	2	3	7	3	20	4	Semi-eurytope	84,6%	
<i>Colotis celimene</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%	
<i>Colotis doubledayi</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%	
<i>Colotis erone</i>	1	3	1	3	2	3	13	3	Mesotope	84,6%	
<i>Colotis euippe</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%	
<i>Colotis evagore</i>	2	3	2	3	8	3	21	4	Semi-eurytope	92,3%	
<i>Colotis evenina</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%	
<i>Colotis ione</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%	
<i>Colotis lais</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%	
<i>Colotis pallene</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%	
<i>Colotis regina</i>	1	3	2	3	4	3	16	3	Mesotope	92,3%	
<i>Colotis vesta</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%	
<i>Dixeia charina</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%	
<i>Dixeia doxo</i>	1	3	2	3	5	3	17	3	Mesotope	92,3%	
<i>Dixeia leucophanes</i>	1	3	1	3	3	3	14	3	Mesotope	92,3%	
<i>Dixeia pigea</i>	2	3	1	3	4	3	16	3	Mesotope	92,3%	
<i>Dixeia spilleri</i>	2	3	1	3	3	3	15	3	Mesotope	92,3%	
<i>Eronia cleodora</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%	
<i>Leptosia alcesta</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%	
<i>Mylothris agathina</i>	3	3	3	3	4	3	19	3	Mesotope	84,6%	
<i>Mylothris rueppellii</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%	
<i>Mylothris trimenia</i>	1	3	2	3	2	3	14	3	Mesotope	92,3%	
<i>Nepheronia argia</i>	2	3	3	3	5	3	19	3	Mesotope	100,0%	
<i>Nepheronia buquetii</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%	
<i>Nepheronia thalassina</i>	2	3	2	3	5	3	18	3	Mesotope	100,0%	
<i>Pieris brassicae</i>	Exotic							Ex	Exotic		
<i>Pinacopteryx eriphia</i>	1	3	2	3	6	3	18	3	Mesotope	92,3%	
<i>Pontia helice</i>	4	3	4	3	4	3	21	4	Semi-eurytope	84,6%	
<i>Teracolus agoye</i>	2	3	2	3	4	3	17	3	Mesotope	100,0%	
<i>Teracolus eris</i>	2	3	2	3	6	3	19	3	Mesotope	92,3%	
<i>Teracolus subfasciatus</i>	1	3	1	3	4	3	15	3	Mesotope	92,3%	

Table 2 – Distribution of species within the eurytopic-stenotopic spectrum and within butterfly families.

Family	Extreme stenotopes		Semi-stenotopes		Mesotopes		Semi-eurytopes		Extreme eurytopes		Species total	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Hesperiidae	0	0,0%	5	0,8%	82	12,3%	11	1,7%	0	0,0%	98	14,7%
Lycaenidae	157	23,6%	55	8,3%	85	12,8%	17	2,6%	4	0,6%	318	47,8%
Nymphalidae	0	0,0%	53	8,0%	114	17,1%	19	2,9%	2	0,3%	188	28,3%
Papilionidae	0	0,0%	0	0,0%	13	2,0%	0	0,0%	1	0,2%	14	2,1%
Pieridae	0	0,0%	0	0,0%	38	5,7%	9	1,4%	0	0,0%	47	7,1%
Totals	157	23,6%	113	17,0%	332	49,9%	56	8,4%	7	1,1%	665	100,0%

Table 3 – Threatened South African butterfly species and subspecies (based on Mecenero *et al.*, 2020).

SPECIES	ESI CATEGORY	THREAT CATEGORY ¹	IUCN CRITERIA
<i>Deloneura immaculata</i>	Extinct	EX	EX
<i>Lepidochrysops hypopolia</i>	Extinct	EX	EX
<i>Stygionympha dicksoni</i>	Semi-stenotope	CR-PE	CR-PE B 1ab(iii)
<i>Thestor barbatus</i>	Extreme stenotope	CR	CR B 1ab(iii,v)+2ab(iii,v)
<i>Thestor kaplani</i>	Extreme stenotope	CR	CR B 1ab(iii)
<i>Thestor strutti</i>	Extreme stenotope	CR	CR B 1ab(v)
<i>Aloeides rossouwi</i>	Extreme stenotope	CR	CR B 1ab(iii,v)+2ab(iii,v); C2a(ii)
<i>Aloeides stevensoni</i>	Extreme stenotope	CR	CR B 1ab(iii,v)+2ab(iii,v)
<i>Chrysochrysis dicksoni</i>	Extreme stenotope	CR	CR B 1b(i,ii,iii,v)
<i>Eriksonia edgei</i>	Extreme stenotope	CR	CR B 1ab(iii,v)+2ab(iii,v)
<i>Lepidochrysops jefferyi</i>	Extreme stenotope	CR	CR B 1ab(iii)
<i>Lepidochrysops swanepoeli</i>	Extreme stenotope	CR	CR B 1ab(iii)
<i>Orachrysops niobe</i>	Extreme stenotope	CR	CR A2; B 1ab(iii,v)+2ab(iii,v); C1+2a(i,ii); D
<i>Trida sarahae</i>	Semi-stenotope	CR	CR B 1ab(iii,v)+2ab(iii,v)
<i>Alaena margaritacea</i>	Semi-stenotope	CR	CR B 1ab(iii)+2ab(iii)
<i>Capys penningtoni</i>	Semi-stenotope	CR	CR C2a(i)
<i>Dingana fraterna</i>	Semi-stenotope	CR	CR B 1ab(iii,v); C2a(ii)
<i>Thestor claassensi</i>	Extreme stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Aloeides barbarae</i>	Extreme stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Aloeides clarki</i>	Extreme stenotope	EN	EN B 1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
<i>Aloeides lutescens</i>	Extreme stenotope	EN	EN B 1ab(i,ii,iii)+2ab(i,ii,iii)
<i>Aloeides nubilus</i>	Extreme stenotope	EN	EN B 1ab(iii,v)+2ab(iii,v); C2a(i)
<i>Chrysochrysis aureus</i>	Extreme stenotope	EN	EN C2a(i)
<i>Chrysochrysis rileyi</i>	Extreme stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Lepidochrysops littoralis</i>	Extreme stenotope	EN	EN B 1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
<i>Lepidochrysops lotana</i>	Extreme stenotope	EN	EN B 1ab(iii)
<i>Lepidochrysops praeterita</i>	Extreme stenotope	EN	EN B 1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
<i>Orachrysops ariadne</i>	Extreme stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Orachrysops mijburghi</i>	Extreme stenotope	EN	EN B 1ab(ii,iii)+2ab(ii,iii)
<i>Orachrysops regalis</i>	Extreme stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Orachrysops violescens</i>	Extreme stenotope	EN	EN B 1ab(iii)
<i>Aslauga australis</i>	Semi-stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Dingana clara</i>	Semi-stenotope	EN	EN B 1ab(iii)+2ab(iii)
<i>Dingana dingana</i>	Semi-stenotope	EN	EN B 1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
<i>Pseudonympha swanepoeli</i>	Semi-stenotope	EN	EN B 2ab(i,ii,iii,iv,v)
<i>Metisella syrinx</i>	Semi-stenotope	VU	VU D2
<i>Chrysochrysis lyncurium</i>	Extreme stenotope	VU	VU B 1ab(ii,iii,iv,v)
<i>Chrysochrysis penningtoni</i>	Extreme stenotope	VU	VU B 1ab(iii)+2ab(iii)
<i>Chrysochrysis trimeni</i>	Extreme stenotope	VU	VU D2
<i>Lepidochrysops irvingi</i>	Extreme stenotope	VU	VU B 1ab(iii)
<i>Lepidochrysops pephredo</i>	Extreme stenotope	VU	VU B 1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v)
<i>Lepidochrysops victori</i>	Extreme stenotope	VU	VU D2
<i>Orachrysops montanus</i>	Extreme stenotope	VU	VU D2

SPECIES	ESI CATEGORY	THREAT CATEGORY ¹	CRITERIA
<i>Teriomima zuluana</i>	Mesotope	VU	VU B1b(ii,iii)c(ii)
<i>Hypolycaena lochmophila</i>	Mesotope	VU	VU B2ab(iii)
<i>Dingana jerinae</i>	Semi-stenotope	VU	VU D2
<i>Iolaus lulua</i>	Mesotope	VU	VU B1ab(iii)
<i>Aloeides egerides</i>	Extreme stenotope	VU	VU B1ab(iii)
<i>Abantis bicolor</i>	Mesotope	NT	NT B1ab(iii)
<i>Metisella meninx</i>	Mesotope	NT	NT C2a(i)
<i>Anthene lindae</i>	Mesotope	NT	NT D2
<i>Dingana alaedeus</i>	Semi-stenotope	NT	NT B1a
<i>Lepidochrysops methymna</i>	Extreme stenotope	EX (ssp. <i>dicksoni</i>)	EX
<i>Trimenia malagrida</i>	Extreme stenotope	CR-PE (ssp. <i>malagrida</i>)	CR-PE B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
		CR-PE (ssp. <i>paarlensis</i>)	CR-PE B1ab(iii)+2ab(iii)
		EN (ssp. <i>maryae</i>)	EN B1ab(i,ii,iii,iv,v)
<i>Trimenia wallengrenii</i>	Extreme stenotope	CR-PE (ssp. <i>wallengrenii</i>)	CR-PE B1ab(i,ii,iii,iv,v)
		EN (ssp. <i>gonnemoui</i>)	EN B1ab(ii,iii)+2ab(ii,iii)
<i>Chrysochrysis thysbe</i>	Semi-stenotope	CR-PE (ssp. <i>mithras</i>)	CR-PE C2a(ii)b
		CR (ssp. <i>schlozae</i>)	CR B1ab(ii,iii,iv,v)
		EN (ssp. <i>whitei</i>)	EN B1ab(i,ii,iii,iv)
<i>Thestor brachycera</i>	Extreme stenotope	CR (ssp. <i>brachycera</i>)	CR B1ab(i,ii,iii,iv,v)
<i>Thestor dicksoni</i>	Extreme stenotope	CR (ssp. <i>warreni</i>)	CR B1ab(ii,iii)
		VU (ssp. <i>malagas</i>)	VU D2
<i>Chrysochrysis adonis</i>	Extreme stenotope	CR (ssp. <i>adonis</i>)	CR B1ab(i,ii,iv,v)+2ab(i,ii,iv,v)
<i>Kedestes lenis</i>	Mesotope	CR (ssp. <i>lenis</i>)	CR B1ab(i,ii,iii,iv,v)
<i>Kedestes niveostriga</i>	Mesotope	VU (ssp. <i>schloszi</i>)	VU B1ab(iii)
<i>Trida barberae</i>	Mesotope	CR (ssp. <i>bunta</i>)	CR B1ab(iii); C2a(i)
<i>Aloeides carolynnae</i>	Extreme stenotope	EN (ssp. <i>carolynnae</i>)	EN B1ab(i,iii,iv,v)
		NT (ssp. <i>aurata</i>)	NT D2
<i>Aloeides dentatis</i>	Extreme stenotope	EN (ssp. <i>dentatis</i>)	EN B1ab(iii)+2ab(iii); C2a(i)
<i>Aloeides pallida</i>	Extreme stenotope	EN (ssp. <i>juno</i>)	EN B1ab(i,ii,iii)+2ab(i,ii,iii)
		NT (ssp. <i>littoralis</i>)	NT B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)
<i>Aloeides thyra</i>	Extreme stenotope	EN (ssp. <i>orientis</i>)	EN B1ab(i,ii,iii,iv)+2ab(i,ii,iii,iv)
<i>Chrysochrysis brooksi</i>	Extreme stenotope	EN (ssp. <i>tearei</i>)	EN B1ab(i,ii,iii)+2ab(i,ii,iii)
<i>Chrysochrysis phosphor</i>	Semi-stenotope	EN (ssp. <i>borealis</i>)	EN B1ab(iii,iv)+2ab(iii,iv)
<i>Aloeides trimeni</i>	Semi-stenotope	EN (ssp. <i>southeyae</i>)	EN B1ab(ii,iii)+2ab(ii,iii)
<i>Durbania amakosa</i>	Semi-stenotope	EN (ssp. <i>flavida</i>)	EN C2a(i)
		VU (ssp. <i>albescens</i>)	VU B1ab(i,ii,iii,iv)
<i>Lepidochrysops ketsi</i>	Semi-stenotope	EN (ssp. <i>leucomacula</i>)	EN A3bc; B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v)
<i>Telchinia induna</i>	Mesotope	EN (ssp. <i>salmontana</i>)	EN B1ab(iii,v)+2ab(iii,v)
<i>Thestor protumnus</i>	Semi-stenotope	VU (ssp. <i>terblanchei</i>)	VU D1+2
<i>Dira swanepoeli</i>	Semi-stenotope	VU (ssp. <i>isolata</i>)	VU D2
<i>Serradinga clarki</i>	Semi-stenotope	VU (ssp. <i>amissivalis</i>)	VU D2
<i>Torynesis mintha</i>	Semi-stenotope	VU (ssp. <i>piquetbergensis</i>)	VU D2
<i>Ornipholidotos peucetia</i>	Mesotope	NT (ssp. <i>penningtoni</i>)	NT B1ab(iii)

¹ EX = Extinct; CR-PE = Critically Endangered – Possibly Extinct; CR = Critically Endangered; EN = Endangered; VU = Vulnerable; NT = Near Threatened.