

# Dynamic inventory of moths of Savitribai Phule Pune University (Pune, India) through crowdsourcing via *iNaturalist*.

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## Abstract

We present here the checklist of moths (Lepidoptera: Heterocera) for the campus of Savitribai Phule Pune University, situated in the metropolis of Pune in the state Maharashtra in India. We report identification of 189 unique genera along with 154 unique species. Despite the relative small size of the observation area and the location being at the heart of a busy metropolis, the moths were found to be of diverse variety, with 26 different families and 76 tribes.

The identifications of the species was crowd-sourced via [iNaturalist.org](https://www.inaturalist.org). An automated program was developed to fetch the identification and generate the list. The program is also being made available open source. As a result the checklist remains relevant all the time with newer identification, correcting existing identification (if required) and taxonomic updates of the future.

## Introduction

The bustling metropolis of Pune is located at the western part of India at  $18^{\circ}31'13''\text{N}$  and  $73^{\circ}51'24''\text{E}$  (Fig 1(a)). The metropolitan area of the city has estimated population of 7.4 million (Wikipedia (2021)) and is home to several education institutes including Savitribai Phule Pune University (formerly known as University of Pune). The city is located at the foothills of Western Ghats (Sahyadri mountain ranges) and is rich in biodiversity.



*Fig 1: (a) Pune city, shown with red marker, is located at the western part of India in the state of Maharashtra. It lies west of the Western Ghats. (b) Map of the university (shaded in yellow) along with the locations (in blue) where most of the observations were carried out. Courtesy: ACME mapper/Openstreetmap.*

Established in 1949 the university is spread across the area of 411 acres and is considered to be a prime institute in India. The campus is located roughly at the elevation of 580 m from mean sea level. Ecologically one the unique features of the university campus is the presence of large numbers of *Dalbergia melanoxylon* (African blackwood) trees, believed to have been introduced in colonial times by British government. Such a large population of these trees is not reported anywhere in India. Apart from *Dalbergia*

melanoxyton there are a handful of introduced species like *Couroupita guianensis* (cannon-ball), *guazuma ulmifolia* (West Indian elm), *Libidibia coriaria* (divi-divi), *adansonia* (baobabs) among others. The campus also hosts multiple native trees mainly *ficus benghalensis* (Indian banyan), *ficus religiosa* (sacred fig), *Cassia fistula* (golden rain), *jacaranda mimosifolia* (blue jacaranda) etc.

Despite the rich biodiversity we could not find the comprehensive checklist for the campus or even broader metropolis region. One of the most important works in the nearby region on lepidoptera inventory is due to Shubhalaxmi et. al. (2011) wherein the authors have explored the said fauna in Western Ghats. Their areas of observations has been mainly the hilly region with dense forest cover. They have reported a rich fauna but it is expected that an urban environment is unlikely to support same diversity. The other records do exist from northern Maharashtra (Gurule and Nikam (2011, 2013) , but the terrain and the climate is significantly differ from that in Pune. Therefore it was imperative to document the Lepidoptera fauna in its current state for the university campus.

## Methodology

To generate the checklist we decided to utilise the power of crowd sourcing using modern technologies. With its powerful Artificial Intelligence engine as well as presence of various taxonomists, iNaturalist (iNaturalist(2021)) was our choice of technology. iNaturalist is a platform for scientists and citizens alike to share the observations from all across the globe. The records are available to public and are naturally peer-reviewed at all the times. Additionally the records from iNaturalist is also shared with Global Biodiversity Information Facility (GBIF(2021)) for broader scientific use.

For data collections we carried more than two years of observations from 2019 to 2021 and ongoing. We periodically observed the walls lit with 60W compact fluorescent lamps located mainly at three locations on the campus: 1) near Jaykar library, 2) Faculty house

and 3) department of scientific computing modeling & simulation. Some insignificant number of observations were also made at other location across the campus. To be the non-invasive, no separate traps were set up; neither any moth was captured for the observation. As a result some of the identification had to be limited to genera level.

## Results

Before we start discussing the findings from the observation it is worth pointing out that results we are about to present are dynamic in nature. That means over the period of time some updates are expected due to addition of new observation, correction of existing identification or taxonomic changes of future. This ensures it will be continually relevant and never be outdated. In order to stay up-to-date the dynamic version of the checklist is also made available on [https://gitlab.com/bspujari/sppu\\_moths](https://gitlab.com/bspujari/sppu_moths). Additionally an interactive webpage is also maintained at [author's webpage](#)<sup>2</sup>. Moreover for sake of accessibility the complete Python program that fetches the data from iNaturalist and compiles the list, is made available - open source<sup>3</sup> - on both of these pages.

At the time of writing of this manuscript, total of 880 observations were made with 737 identification at various level of taxonomy. The list of uniquely identified species is collected in Table 1, at the end of this section. The table also show an "Obs ID" with each observations which is a unique identification number assigned by iNaturalist. One can simply use [inaturalist.org/observations/<<Obs ID>>](https://inaturalist.org/observations/<<Obs ID>>) to reach the dedicated observation page which includes the details of taxa as well as media associated with the observation. Additionally any taxonomic updates are also reflected on the page, for example, [inaturalist.org/observations/30996315](https://inaturalist.org/observations/30996315) shows how *Pyrausta panopealis* was

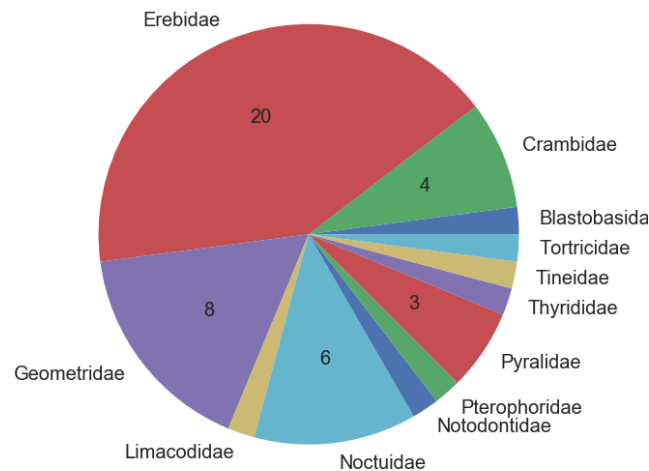
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<sup>2</sup> [http://cms.unipune.ac.in/~bspujari/SPPU\\_Lepidoptera](http://cms.unipune.ac.in/~bspujari/SPPU_Lepidoptera)

<sup>3</sup> GNU Affero General Public License (GPL) V-3

swapped to *Pyrausta phoenicealis*, with the reasoning given on [inaturalist.org/taxon\\_changes/64986](https://inaturalist.org/taxon_changes/64986).

These observations in total represent 26 families as shown in Fig 2, with five most abundant families being Erebidae (234), Geometridae (147), Crambidae (117), Noctuidae (86) and Pyralidae (23), where the bracketed quantities indicate the observation count. It is worth contrasting the reports to that of Shubhalaxmi et al (Shubhalaxmi (2011)) . Both Erebidae, Geometridae families are most abundant in their observations too, however their third abundant family Sphingidae - with 45 species of their 418 total - is considerably absent with merely 13 observations of 7 species. Similarly in the campus of Goa university (Goa, India) only 9 species of Sphingidae have been reported (Gurule and Brookes (2021)) . It is thus reasonable to assume that the urban environment does not suit the host plants required for the Sphingidae.



*Fig 2: Distribution of families in observed. The numbers indicate uniquely identification of species. Count smaller than 2 are not shown for sake of clarity.*

On the other hand, there are some interesting species seen that are rarely reported in Pune or even in India. For example: *Spatialia argentifera* (Obs ID: 32642126), *Sauris*

eupitheciata (Obs Id: 33435892) , *Idaea costiguttata* (Obs Id: 35704086), *Ascotis selenaria* (Obs Id: 63959768), *Entomogramma torsa* (Obs Id: 34574134), *Hulodes drylla* (Obs Id: 38708649), *Hyposada hydrocampata* (Obs Id: 33289004). Reports of such species are rare in India and it is indeed hearting to see their presence on the campus. The other notable species is *Sommeria marchalii*. At the time of preparing this manuscript 49 of 54 observations from India are from Maharashtra state, specifically from the narrow region of western ghats. Pune being in the same region, we have total of eight observations of the species. It appears that this species is fairly localised in west and south of India. *Arsacia rectalis* is also fairly abundant on the campus. It is reported that the larvae of the species feeds on the plants of *Dalbergia* genus. It can be speculated - but remains to be verified - that they also feed on *Dalbergia melanoxylon* which as mentioned above is very common on the campus.

Below in Table 1, we present the detailed checklist. As suggested before, the list is expected to grow, modify over the period of time and thus we associate a date with it. What is being released here should be considered as a snapshot at the time of release of this document, and for all future purposes readers are encouraged to check the URLs given before.

	<b>Family</b>	<b>Subfamily</b>	<b>Genus</b>	<b>Species</b>	<b>Obs ID</b>
1	Blastobasidae	Blastobasinae			83239194
2	Bombycidae	Bombycinae	Trilocha	Trilocha varians	35221517
3	Bombycidae	Bombycinae	Trilocha		63140525
4	Choreutidae	Choreutinae			35933515
5	Cosmopterigida e	Cosmopteriginae	Pyroderces		31478222
6	Crambidae	Acentropinae	Elophila		32675514
7	Crambidae	Acentropinae	Eoophyla	Eoophyla sejunctalis	36080054
8	Crambidae	Acentropinae	Parapoynx	Parapoynx stagnalis	62869586
9	Crambidae	Acentropinae			35642095
10	Crambidae	Crambinae	Culladia		55300272
11	Crambidae	Crambinae			85166676
12	Crambidae	Crambinae	Glaucocharis		33410558
13	Crambidae	Cybalomiinae	Hendecasis	Hendecasis duplifascialis	31476720
14	Crambidae	Glaphyriinae	Noorda		59012406
15	Crambidae	Lathrotelinae	Sufetula		53369436
16	Crambidae	Pyraustinae	Euclasta		53598311
17	Crambidae	Pyraustinae	Pyrausta	Pyrausta phoenicealis	53752820
18	Crambidae	Pyraustinae	Pyrausta		63738875
19	Crambidae	Pyraustinae			33247089



20	Crambidae	Pyraustinae	Paliga	Paliga machoeralis	35328164
21	Crambidae	Spilomelinae	Agrotera		35703633
22	Crambidae	Spilomelinae	Haritalodes	Haritalodes derogata	61877039
23	Crambidae	Spilomelinae	Lygropia	Lygropia distorta	32280175
24	Crambidae	Spilomelinae	Nosophora	Nosophora euryterminalis	30612736
25	Crambidae	Spilomelinae	Eurrhyarodes	Eurrhyarodes bracteolalis	33565981
26	Crambidae	Spilomelinae	Eurrhyarodes		52688564
27	Crambidae	Spilomelinae	Herpetogramma	Herpetogramma licarsisalis	84010982
28	Crambidae	Spilomelinae	Herpetogramma		53959407
29	Crambidae	Spilomelinae	Hydriris	Hydriris ornatalis	36093562
30	Crambidae	Spilomelinae	Lamprosema	Lamprosema commixta	31760798
31	Crambidae	Spilomelinae	Hymenia	Hymenia perspectalis	35221259
32	Crambidae	Spilomelinae	Spoladea	Spoladea recurvalis	64183228
33	Crambidae	Spilomelinae			34731071
34	Crambidae	Spilomelinae	Botyodes		37126765
35	Crambidae	Spilomelinae	Cirrhochrista	Cirrhochrista brizoalis	31886094

36	Crambidae	Spilomelinae	Conogethes	Conogethes punctiferalis	35397500
37	Crambidae	Spilomelinae	Conogethes		31848999
38	Crambidae	Spilomelinae	Diaphania	Diaphania indica	35308955
39	Crambidae	Spilomelinae	Endocrossis	Endocrossis flavibasalis	35328269
40	Crambidae	Spilomelinae	Glyphodes	Glyphodes bivitalis	36098153
41	Crambidae	Spilomelinae	Glyphodes	Glyphodes onychinalis	30346624
42	Crambidae	Spilomelinae	Maruca	Maruca vitrata	32631608
43	Crambidae	Spilomelinae	Maruca		33379170
44	Crambidae	Spilomelinae	Omiodes	Omiodes indicata	35182888
45	Crambidae	Spilomelinae	Pachynoa		34731070
46	Crambidae	Spilomelinae	Poliobotys	Poliobotys ablactalis	36908970
47	Crambidae	Spilomelinae	Synclera	Synclera traducalis	35182822
48	Crambidae	Spilomelinae	Synclera		36098877
49	Crambidae	Spilomelinae	Talanga	Talanga sexpunctalis	36098075
50	Crambidae	Spilomelinae	Tyspanodes	Tyspanodes linealis	31482841
51	Crambidae	Spilomelinae	Sameodes	Sameodes cancellalis	58577362
52	Crambidae	Spilomelinae	Sameodes		58209423
53	Crambidae	Spilomelinae			53737568

54	Crambidae	Spilomelinae	Cnaphalocrocis	Cnaphalocrocis medinalis	35241633
55	Crambidae	Spilomelinae	Cnaphalocrocis	Cnaphalocrocis poeyalis	62869599
56	Crambidae	Spilomelinae	Cnaphalocrocis		32280688
57	Crambidae	Spilomelinae	Bradina		35919100
58	Crambidae	Spilomelinae	Chabula	Chabula acamasalis	30346843
59	Crambidae	Spilomelinae	Nausinoe	Nausinoe geometralis	65317514
60	Crambidae	Spilomelinae	Rehimena		31409191
61	Crambidae	Spilomelinae			53429912
62	Crambidae				64915239
63	Erebidae	Aganainae	Asota	Asota producta	37780881
64	Erebidae	Aganainae	Sommeria	Sommeria marchalii	84127270
65	Erebidae	Anobinae	Plecoptera	Plecoptera quaesita	35328272
66	Erebidae	Arctiinae	Cretonotos	Cretonotos gangis	36465870
67	Erebidae	Arctiinae	Cretonotos	Cretonotos transiens	36825350
68	Erebidae	Arctiinae	Cretonotos		68106291
69	Erebidae	Arctiinae	Nyctemera	Nyctemera lactinia	36932618
70	Erebidae	Arctiinae	Olepa	Olepa ricini	29286773
71	Erebidae	Arctiinae	Olepa		84641908

72	Erebidae	Arctiinae			64915250
73	Erebidae	Arctiinae	Aemene		62869421
74	Erebidae	Arctiinae	Brunia	Brunia antica	64366593
75	Erebidae	Arctiinae	Brunia		63738900
76	Erebidae	Arctiinae	Cyana	Cyana puella	64087831
77	Erebidae	Arctiinae	Miltochrista		35348583
78	Erebidae	Arctiinae	Nepita	Nepita conferta	31587642
79	Erebidae	Arctiinae	Schistophleps		36118272
80	Erebidae	Arctiinae			56938463
81	Erebidae	Arctiinae	Syntomoides	Syntomoides imaon	69136347
82	Erebidae	Arctiinae			63362395
83	Erebidae	Arctiinae			63362717
84	Erebidae	Boletobiinae	Araeopteron		35261406
85	Erebidae	Boletobiinae	Ataboruza	Ataboruza divisa	35398544
86	Erebidae	Boletobiinae	Enispa	Enispa elataria	31732773
87	Erebidae	Boletobiinae	Enispa	Enispa rosellus	56180047
88	Erebidae	Boletobiinae	Enispa		56430920
89	Erebidae	Boletobiinae	Zurobata	Zurobata vacillans	58150851
90	Erebidae	Boletobiinae	Cerynea		66420871
91	Erebidae	Boletobiinae	Eublemma	Eublemma abrupta	38025654
92	Erebidae	Boletobiinae	Eublemma	Eublemma accedens	35133573

93	Erebidae	Boletobiinae	Eublemma	Eublemma baccalix	30667613
94	Erebidae	Boletobiinae	Hyposada	Hyposada hydrocampata	33289004
95	Erebidae	Boletobiinae	Gesonia		34763754
96	Erebidae	Boletobiinae	Rhesala		31590079
97	Erebidae	Boletobiinae	Hypenagonia		68366615
98	Erebidae	Boletobiinae			59012152
99	Erebidae	Calpinae	Eudocima	Eudocima homaena	37700285
100	Erebidae	Calpinae	Eudocima	Eudocima materna	84267002
101	Erebidae	Calpinae	Eudocima	Eudocima phalonia	36435311
102	Erebidae	Erebinae	Acantholipes	Acantholipes trajecta	37781003
103	Erebidae	Erebinae	Acantholipes		69136311
104	Erebidae	Erebinae	Hamodes	Hamodes propitia	35665225
105	Erebidae	Erebinae	Entomogram ma	Entomogramm a torsa	34574134
106	Erebidae	Erebinae	Ercheia		60586231
107	Erebidae	Erebinae	Erebus	Erebus caprimulgus	51362512
108	Erebidae	Erebinae	Erebus	Erebus hieroglyphica	36813776
109	Erebidae	Erebinae	Mocis	Mocis frugalis	59548226
110	Erebidae	Erebinae	Mocis	Mocis undata	36492026

111	Erebidae	Erebinae	Ericeia	Ericeia inangulata	59955527
112	Erebidae	Erebinae	Ericeia		64915205
113	Erebidae	Erebinae	Hulodes	Hulodes caranea	36152289
114	Erebidae	Erebinae	Hulodes	Hulodes drylla	38708649
115	Erebidae	Erebinae	Hulodes		61067845
116	Erebidae	Erebinae	Speiredonia		31041150
117	Erebidae	Erebinae	Thyas	Thyas coronata	53481563
118	Erebidae	Erebinae	Polydesma	Polydesma boarmoides	65755506
119	Erebidae	Erebinae	Pericyma	Pericyma cruegeri	31852601
120	Erebidae	Erebinae	Pericyma		63362313
121	Erebidae	Erebinae	Achaea	Achaea janata	66367988
122	Erebidae	Erebinae	Bastilla		35264905
123	Erebidae	Erebinae	Dysgonia	Dysgonia algira	32220806
124	Erebidae	Erebinae	Dysgonia	Dysgonia stuposa	32025376
125	Erebidae	Erebinae			35640458
126	Erebidae	Erebinae	Sphingomorpha	Sphingomorpha chlorea	36403148
127	Erebidae	Erebinae	Spirama		31155714
128	Erebidae	Erebinae			82953826
129	Erebidae	Eulepidotinae	Anticarsia	Anticarsia irrorata	35261384
130	Erebidae	Herminiinae	Hipoepa		30908886

131	Erebidae	Herminiinae	Hydrillodes	Hydrillodes lentalis	31357085
132	Erebidae	Herminiinae	Hydrillodes		84874755
133	Erebidae	Herminiinae	Naarda		84571546
134	Erebidae	Herminiinae	Nodaria		36118450
135	Erebidae	Herminiinae	Progonia	Progonia umbrifera	56032914
136	Erebidae	Herminiinae	Progonia		35932694
137	Erebidae	Herminiinae	Simplicia		64235875
138	Erebidae	Herminiinae	Zanclognatha		69853856
139	Erebidae	Herminiinae			57999407
140	Erebidae	Hypeninae	Britha		60586215
141	Erebidae	Hypeninae	Dichromia	Dichromia laesalis	32531841
142	Erebidae	Hypeninae	Hypena	Hypena laceratalis	35397524
143	Erebidae	Hypeninae	Hypena	Hypena obacerralis	82953962
144	Erebidae	Hypeninae	Hypena		57019534
145	Erebidae	Hypenodinae	Luceria		84853671
146	Erebidae	Hypenodinae			30995466
147	Erebidae	Lymantriinae	Arctornis		35308640
148	Erebidae	Lymantriinae	Perina	Perina nuda	36238224
149	Erebidae	Lymantriinae	Lymantria		33533623
150	Erebidae	Lymantriinae	Artaxa	Artaxa guttata	36823389
151	Erebidae	Lymantriinae	Artaxa		82953682

152	Erebidae	Lymantriinae	Nygmia	Nygmia icilia	37423854
153	Erebidae	Lymantriinae	Orvasca	Orvasca subnotata	65755581
154	Erebidae	Lymantriinae	Orvasca		69136368
155	Erebidae	Lymantriinae	Olene		33411335
156	Erebidae	Lymantriinae	Orgyia	Orgyia postica	33535062
157	Erebidae	Lymantriinae	Orgyia		35182794
158	Erebidae	Lymantriinae			35607403
159	Erebidae	Lymantriinae			31886103
160	Erebidae	Pangraptinae	Egnasia	Egnasia mesotypa	31357611
161	Erebidae	Pangraptinae	Egnasia		56515558
162	Erebidae	Scoliopteryginae	Anomis	Anomis flava	37394111
163	Erebidae	Scoliopteryginae	Anomis		33072159
164	Erebidae	Tinoliinae	Calesia	Calesia stillifera	31615787
165	Erebidae		Arsacia	Arsacia rectalis	84437558
166	Erebidae				84437530
167	Euteliidae	Euteliinae	Eutelia		33288997
168	Euteliidae	Euteliinae	Penicillaria	Penicillaria jocosatrix	33388423
169	Euteliidae	Stictopterinae	Lophoptera	Lophoptera squammigera	57019547
170	Gelechiidae				35293021
171	Geometridae	Desmobathrinae	Derambila	Derambila costata	34694505



172	Geometridae	Desmobathrinae	Derambila	Derambila saponaria	30967570
173	Geometridae	Ennominae	Biston	Biston suppressaria	55871874
174	Geometridae	Ennominae	Biston		55871849
175	Geometridae	Ennominae	Alcis		35261540
176	Geometridae	Ennominae	Ascotis	Ascotis selenaria	63959768
177	Geometridae	Ennominae	Cleora	Cleora injectaria	85166645
178	Geometridae	Ennominae	Cleora		35241732
179	Geometridae	Ennominae	Ectropis	Ectropis bhurmitra	84853587
180	Geometridae	Ennominae	Ectropis		37183490
181	Geometridae	Ennominae	Hypomecis		62869457
182	Geometridae	Ennominae	Hyposidra	Hyposidra talaca	59012370
183	Geometridae	Ennominae	Ruttellerona	Ruttellerona cessaria	31404311
184	Geometridae	Ennominae			36407203
185	Geometridae	Ennominae	Astygisa		84010939
186	Geometridae	Ennominae	Petelia	Petelia medardaria	32349740
187	Geometridae	Ennominae	Petelia		35917990
188	Geometridae	Ennominae			36423227
189	Geometridae	Ennominae	Heterostegane		32570380

190	Geometridae	Ennominae	Achrosis	Achrosis rondelaria	56809923
191	Geometridae	Ennominae	Achrosis		81454169
192	Geometridae	Ennominae	Chiasmia	Chiasmia eleonora	35312645
193	Geometridae	Ennominae	Chiasmia	Chiasmia emersaria	65517198
194	Geometridae	Ennominae	Chiasmia	Chiasmia fidoniata	32349860
195	Geometridae	Ennominae	Chiasmia	Chiasmia nora	31092897
196	Geometridae	Ennominae	Chiasmia	Chiasmia pluviata	59011982
197	Geometridae	Ennominae			62044205
198	Geometridae	Ennominae	Hyperythra	Hyperythra lutea	67439764
199	Geometridae	Ennominae			56029020
200	Geometridae	Geometrinae	Agathia		30782803
201	Geometridae	Geometrinae	Argyrocosma	Argyrocosma inductaria	62182225
202	Geometridae	Geometrinae	Comibaena	Comibaena cassidara	36147545
203	Geometridae	Geometrinae	Comostola	Comostola meritaria	33288998
204	Geometridae	Geometrinae	Hemithea	Hemithea tritonaria	57179702
205	Geometridae	Geometrinae	Idiochlora		64417968
206	Geometridae	Geometrinae	Microloxia	Microloxia indecetata	35948320
207	Geometridae	Geometrinae			55914366

208	Geometridae	Geometrinae	Synchlora		29607859
209	Geometridae	Geometrinae			84385365
210	Geometridae	Larentiinae	Eupithecia		84127335
211	Geometridae	Larentiinae	Gymnoscelis		35948201
212	Geometridae	Larentiinae			35949740
213	Geometridae	Larentiinae	Sauris	Sauris eupitheciata	33435892
214	Geometridae	Larentiinae	Sauris		32315761
215	Geometridae	Sterrhinae	Anisephyra	Anisephyra ocellaria	84869021
216	Geometridae	Sterrhinae	Chrysocraspeda	Chrysocraspeda faganaria	35331122
217	Geometridae	Sterrhinae	Chrysocraspeda	Chrysocraspeda olearia	31840417
218	Geometridae	Sterrhinae	Chrysocraspeda	Chrysocraspeda sanguinea	30781461
219	Geometridae	Sterrhinae	Chrysocraspeda		84874711
220	Geometridae	Sterrhinae	Cyclophora		33410592
221	Geometridae	Sterrhinae			54274591
222	Geometridae	Sterrhinae	Traminda	Traminda mundissima	84570949
223	Geometridae	Sterrhinae	Scopula		33535207
224	Geometridae	Sterrhinae	Idaea	Idaea amplipennis	84280982
225	Geometridae	Sterrhinae	Idaea	Idaea costiguttata	35704086

226	Geometridae	Sterrhinae	Idaea	Idaea macrospila	85093135
227	Geometridae	Sterrhinae	Idaea	Idaea violacea	84281139
228	Geometridae	Sterrhinae	Idaea		85093190
229	Geometridae	Sterrhinae			83477220
230	Geometridae				57887290
231	Gracillariidae	Phyllocnistinae	Phyllocnistis	Phyllocnistis citrella	29286787
232	Hyblaeidae		Hyblaea	Hyblaea puera	31357389
233	Hyblaeidae		Hyblaea		31356697
234	Lasiocampidae	Lasiocampinae	Gastropacha		36825374
235	Lecithoceridae	Lecithocerinae			57999454
236	Lecithoceridae				31518704
237	Limacodidae	Limacodinae	Parasa	Parasa lepida	30971471
238	Limacodidae	Limacodinae	Thosea		84524856
239	Limacodidae	Limacodinae			68444481
240	Limacodidae				37254103
241	Noctuidae	Acontiinae	Acontia	Acontia crocata	30513989
242	Noctuidae	Acontiinae	Acontia		32475575
243	Noctuidae	Aediinae	Aedia		35293010
244	Noctuidae	Bagisarinae	Amyna		56179937
245	Noctuidae	Bagisarinae	Xanthodes	Xanthodes albago	56129098
246	Noctuidae	Condicinae	Condica	Condica illecta	32587735
247	Noctuidae	Condicinae	Condica		57614197

248	Noctuidae	Eustrotiinae	Maliattha	Maliattha quadripartita	57716071
249	Noctuidae	Eustrotiinae	Maliattha	Maliattha separata	61067936
250	Noctuidae	Eustrotiinae	Maliattha	Maliattha signifera	85001027
251	Noctuidae	Eustrotiinae	Maliattha		59548118
252	Noctuidae	Eustrotiinae	Ozarba	Ozarba punctigera	56029045
253	Noctuidae	Eustrotiinae	Ozarba		31150988
254	Noctuidae	Heliiothinae	Helicoverpa	Helicoverpa armigera	72422010
255	Noctuidae	Heliiothinae	Helicoverpa		42215447
256	Noctuidae	Heliiothinae	Heliothis		31483173
257	Noctuidae	Noctuinae			53429331
258	Noctuidae	Noctuinae	Polytela	Polytela gloriosae	30971472
259	Noctuidae	Noctuinae	Agrotis		30295381
260	Noctuidae	Noctuinae			81454681
261	Noctuidae	Noctuinae	Spodoptera	Spodoptera litura	65681062
262	Noctuidae	Noctuinae	Spodoptera		33320910
263	Noctuidae	Noctuinae			66466249
264	Noctuidae	Plusiinae	Chrysodeixis	Chrysodeixis acuta	35230458
265	Noctuidae	Plusiinae	Chrysodeixis		58400591
266	Noctuidae	Plusiinae	Ctenoplusia	Ctenoplusia albostrata	64915105

267	Noctuidae	Plusiinae	Thysanoplusia	Thysanoplusia orichalcea	59011920
268	Noctuidae	Plusiinae	Zonoplusia	Zonoplusia ochreatea	34567555
269	Noctuidae	Plusiinae			83806861
270	Noctuidae	Plusiinae			35414662
271	Noctuidae				83155117
272	Nolidae	Chloephorinae			32280177
273	Nolidae	Eariadinae	Earias		52688448
274	Nolidae	Eligminae	Gadirtha		33410661
275	Nolidae	Eligminae	Selepa		35686599
276	Nolidae	Nolinae	Nola	Nola lucidalis	31886088
277	Nolidae	Nolinae	Nola		84862171
278	Nolidae	Nolinae	Sarbena		35932748
279	Nolidae	Nolinae			30783149
280	Nolidae	Westermanniinae	Westermanni		33410603
281	Nolidae				53959245
282	Notodontidae	Pygaerinae	Clostera		81506804
283	Notodontidae	Spataliinae	Spatalia	Spatalia argentifera	33234348
284	Notodontidae				29607906
285	Oecophoridae	Oecophorinae	Promalactis		59548362
286	Oecophoridae				32322017
287	Peleopodidae	Acriinae	Acria		32315694
288	Plutellidae		Plutella		29987203

289	Psychidae				52696758
290	Pterophoridae	Pterophorinae	Emmelina		35261430
291	Pterophoridae	Pterophorinae			34731073
292	Pterophoridae	Pterophorinae	Sphenarches	Sphenarches anisodactylus	35937678
293	Pterophoridae	Pterophorinae			36118427
294	Pterophoridae	Pterophorinae			84281026
295	Pyralidae	Epipaschiinae	Pococera		55300771
296	Pyralidae	Phycitinae	Ephesiodes		83155201
297	Pyralidae	Phycitinae			52696660
298	Pyralidae	Phycitinae			65996268
299	Pyralidae	Pyralinae	Endotricha	Endotricha mesenterialis	33320916
300	Pyralidae	Pyralinae	Endotricha		84127425
301	Pyralidae	Pyralinae	Pyralis	Pyralis pictalis	53630474
302	Pyralidae				31700197
303	Sphingidae	Macroglossinae	Cephonodes	Cephonodes hylas	16861802
304	Sphingidae	Macroglossinae	Daphnis	Daphnis nerii	30971479
305	Sphingidae	Macroglossinae	Hippotion	Hippotion celerio	33200525
306	Sphingidae	Macroglossinae	Hippotion		35846310
307	Sphingidae	Macroglossinae	Theretra	Theretra nessus	59195645
308	Sphingidae	Macroglossinae			33463418
309	Sphingidae	Smerinthinae	Sataspes		34566459

310	Sphingidae	Sphinginae	Acherontia	Acherontia styx	33416939
311	Sphingidae	Sphinginae	Psilogramma	Psilogramma menephron	30971473
312	Stathmopodidae		Stathmopoda	Stathmopoda auriferella	53156244
313	Thyrididae	Siculodinae	Hypolamprus	Hypolamprus angulalis	83155010
314	Thyrididae	Striglininae	Banisia	Banisia myrsusalis	31483241
315	Thyrididae		Striglina	Striglina scitaria	57291976
316	Thyrididae				35398482
317	Tineidae	Erechthiinae	Pyloetis	Pyloetis mimosae	65681096
318	Tineidae	Perissomasticinae	Edosa		53429242
319	Tineidae	Tineinae	Monopis	Monopis monachella	55891598
320	Tineidae	Tineinae	Phereoeca		35360236
321	Tortricidae	Olethreutinae	Loboschiza	Loboschiza koenigiana	29607704
322	Tortricidae	Olethreutinae			33388513
323	Tortricidae	Olethreutinae	Cryptophlebia		35701487
324	Tortricidae	Olethreutinae			31343961
325	Tortricidae	Olethreutinae	Statherotis		33647400
326	Tortricidae	Olethreutinae			62869506
327	Tortricidae	Olethreutinae			59011616



328	Tortricidae	Tortricinae	Clepsis		31151101
329	Tortricidae	Tortricinae	Homona		30971484
330	Tortricidae	Tortricinae			57887329
331	Tortricidae	Tortricinae			35308960
332	Tortricidae				64087942
333	Uraniidae	Epipleminae	Epiplema	Epiplema fulvilinea	84452434
334	Uraniidae	Epipleminae	Phazaca		84571455
335	Uraniidae	Microniinae	Micronia	Micronia aculeata	59226178

*Table 1: List of moths of Savitribai Phule Pune University, retrieved on Jul 01, 2021.*

## Discussion

Despite its presence in a busy metropolis the campus of Savitribai Phule Pune University is home to rich Lepidoptera diversity. With a project spanning for more two years we have compiled a checklist of moths and found the presence of 189 genera and 154 species from 26 families. In an attempt to be precise the identification was crowd sourced via [inaturalist.org](https://www.inaturalist.org) where each identification is effectively peer-reviewed by global community. The identification automatically and periodically retrieved via a Python program - which is also being released with this manuscript. An advantage of such a system is that any addition of new species, or correction to either identification or taxonomic records get automatically incorporated in future versions of checklist. As a result the checklist that is being presented here is dynamic and subsequent changes can be followed up at [GitLab](https://gitlab.com/bspujari/sppu_moths)<sup>4</sup> or

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<sup>4</sup> [https://gitlab.com/bspujari/sppu\\_moths](https://gitlab.com/bspujari/sppu_moths)

[author's webpage](#)<sup>5</sup>. With the given python program anyone should be able to generate similar checklist for area of their interest.

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