An annotated type catalogue of amphibians and reptiles collected by Nikolay A. Zarudny in Iran and Middle Asia

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Abstract

A complete catalogue is provided for the type specimens of amphibians and reptiles collected by Nikolay A. Zarudny and stored mostly in the herpetological collection of the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZISP), as of August 2018. The collection contains 270 type specimens, representing 51 taxa (species and/or subspecies) of one family of turtles, one amphisbaenia family, five lizard families and four snake families from 74 type localities. As a result of studying Zarudny’s collections, mainly from Iran, was the description by A. M. Nikolsky of two new genera, *Microgecko* and *Diplometopon*, and 42 species and subspecies (varieties). Twenty-two of these taxa are regarded currently as valid.

Key words: historical collections, natural history collections, Nikolay A. Zarudny, amphibians, reptiles, type specimens, vouchered material, Zoological Institute

Introduction

The name of Nikolai Alekseevich Zarudny (1859–1919), an outstanding zoologist, geographer and traveler, is widely known to the scientific community. In comparison with the well-known recognition of his contribution to the study of birds, studies in the field of herpetology are much less familiar to zoologists. At present, due to the growing attention to the study of the structure and formation of the biodiversity of Iran, Middle and Central Asia, Zarudny’s contribution to this area of zoology requires special study (Ananjeva 2008, 2012, 2017). Contemporaries noted the outstanding ability of Nikolay A. Zarudny to act as a collector who sampled large quantities of zoological materials during his numerous voyages (Nikolsky 1966). Among them, collections of amphibians and reptiles are of important value and are represented by numerous new records and new species for science (Garanin 2000, Ananjeva 2017). Most of them were contributed to the research collection of the Zoological Museum of the Imperial Academy of Sciences (now the Zoological Institute of the Russian Academy of Sciences) in St. Petersburg.

Specimens collected in Persia (currently Iran), a poorly known country at that time from a herpetological point of view, were presented for the first time by Nikolay A. Zarudny to the collections of the Zoological Institute of the Russian Academy of Sciences.

Based on these specimens, a number of new species of amphibians, turtles and squamate reptiles were described. Collections of Nikolay A. Zarudny together with the most valuable material collected by Nikolay M. Przewalsky and other Russian researchers and travelers during their expeditions to Iran and Central Asia during the second half of XIX century and beginning of XX century constitute the “golden fund” of the Zoological Institute of the Russian Academy of Sciences. Studying these specimens prominent herpetologists Alexander A. Strauch, Jacob von Bedriaga, Alexander M. Nikolsky and Sergey F. Tzarewsky described numerous new species of amphibians and reptiles. As results of these descriptions, about 1,000 specimens representing more than 150 taxa of species rank are stored in the herpetological collection. During the identification and description of specimens stored in the Herpetology Department of the Zoological Institute (Milto & Barabanov 2011, 2012; Barabanov & Milto 2017), information was updated on specimens of amphibians, agamids, anguids, dibamids, scincids and varanid lizards,
which were brought by Nikolay A. Zarudny from his expeditions and especially from his travels to Iran. The data on stored specimens and their images is available from the Zoological Institute’s website in the section “Research Collections” [https://www.zin.ru/Collections/](https://www.zin.ru/Collections/)

In the late XIXth–early XXth centuries Nikolay A. Zarudny, a naturalist and traveler with extensive experience in fieldwork to the Orenburg region, the Middle and the Central Asia taught natural science in the Cadet Corps in Russian City of Pskov. During this period of his life, he made his famous journeys through Eastern, Central and Western Persia (Iran) and Balochistan (also Balochistan or Baluchestan). These expeditions were conducted in 1896, 1898, 1890-1901 and 1903-1904 on behalf of and with funds from the Russian Geographical Society, which brought the scientist well-deserved worldwide fame of a zoologist and traveler. The results of the expeditions made it possible for the first time to provide a detailed general geographic and zoological characterization of the investigated territories. To imagine the scale of Zarudny’s routes (Fig. 1), it is enough to note that during his first voyage in 1896, the traveler penetrated into Sistan (eastern Iran and southern Afghanistan); in the second (1898), after passing through Sistan, he went deep into the center of Persian Baluchistan to the city of Bampur. On the third voyage (1900-1901), Zarudny crossed the Iranian Plateau at its widest point and explored the Mekran Coast of the Indian Ocean. On the fourth journey (1903-1904), he penetrated Persian Mesopotamia to the Persian Gulf (Bobrinsky 1940; Ananjeva 2008, 2012, 2017; Kovshar 2012) and explored western Persia and the southern coast of the Caspian Sea (Fig. 1).

![Map of Zarudny's journeys](image)

**FIGURE 1.** Routes of Nikolay Zarudny journeys to Persia in 1896, 1898, 1890–1901 and 1903–1904 (from Bobrinsky, 1940, with changes).
FIGURE 2. Page from calatogue of Zoological Museum, Imperial Academy of Sciences with notes about Zarudny’s collection from Eastern Persia in 1896.
These trips were highly fruitful. The traveler brought a large number of species of animals, which were unknown to science before this time (Zarudny 1897, 1903; Nikolsky 1896, 1897, 1899a, 1899b, 1900, 1903, 1905, 1907, 1915, 1916). Without exaggeration, it should be recognized that the research and collection of Nikolay A. Zarudny became the first and most important stage in the study of the rich and diverse fauna of Persia (Iran). They are of special value these days when it has now become the arena of numerous complex studies conducted by Iranian zoologists, also in the framework of international projects (Rastegar-Pouyani & Nilson, 2002, Nazarov et al., 2010, 2017; Šmíd et al., 2014, Safaei-Mahroo et al., 2015, Rajabizadeh et al., 2016; Orlova & Nazarov, 2017, Zarrintab et al., 2017, Fathinia et al., 2018, among many others). A tribute of respect to our compatriot and recognition of his achievements are reflected in the dedication to N. A. Zarudny (along with De Filippi and Blanford) of the fundamental monograph “The Lizards of Iran” (Anderson, 1999). In it, a photograph of our outstanding compatriot adorns the page about the merits of “three field zoologists who initiated the scientific research of the Iranian herpetofauna” (Anderson, 1999, p. V).

Specimens of amphibians and reptiles sampled by Zarudny, brought from his expeditions and deposited in the Zoological Museum of the Imperial Academy of Sciences always attracted the interest of herpetologists (Fig. 2).

The head of the Department of Ichthyology and Herpetology, Alexander M. Nikolsky, examined them immediately after their receipt. It is known that these two outstanding zoologists also were experienced in joint fieldwork. In 1885, Nikolsky and Zarudny visited the Transcaspian region and the northeastern part of Persia (Mazurnovich 1983) together. As a result of studying Zarudny’s collections, mainly from Iran, was the description by A. M. Nikolsky of the two new genera, Microgecko and Diplometopon, and 42 new species and/or subspecies (varieties), many of which currently remain valid, and the status of others has been reviewed in recent years. Among the new species of reptiles A. M. Nikolsky described a number of forms in honor of N. A. Zarudny: *Testudo zarudnyi* Nikolsky, 1896 [= *Testudo graeca zarudnyi* Nikolsky, 1896], *Phrynocephalus raddei var. zarudnyi* Nikolsky, *Teratoscincus zarudnyi* Nikolsky, 1897 [= *Teratoscincus keyserlingii* Strauch, 1863], *Gymnodactylus zarudnyi* [= *Mediodactylus russowii zarudnyi* (Nikolsky, 1899)], *Eumeces zarudnyi* Nikolsky, 1900 [= *Eumeces schneiderii zarudnyi* Nikolsky, 1900] and *Diplometopon zarudnyi* Nikolsky, 1907.

The overwhelming majority of type specimens, for which new forms are described, were collected during expeditions to unexplored areas of Iran (Table 1, Fig. 1,4,5).

<table>
<thead>
<tr>
<th>NN</th>
<th>Original name of locality</th>
<th>Modern name of original locality</th>
<th>Coordinates</th>
<th>Taxa described after specimens collected by Nikolay A. Zarudny*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Urbs Dizful in Arabistano</td>
<td>Dezful, Khuzestan Province, Iran</td>
<td>32.38 N 48.41 E</td>
<td><em>Phyllodactylus eugeniae</em>, 37 syntypes; <em>Glauconia hamulirostris</em>, parlectedotype; <em>Contia brevicauda</em>, 3 syntypes; <em>Contia persica var. nigrofasciata</em>, holotype; <em>Lytorhynchus gaddi</em>, 2 syntypes</td>
</tr>
<tr>
<td>2</td>
<td>Nasrie in Arabistano</td>
<td>Ahvaz, Khuzestan Province, Iran</td>
<td>31.32 N 48.67 E</td>
<td><em>Diplometopon zarudnyi</em>, holotype; <em>Glauconia hamulirostris</em>, 6 parlectedotypes; <em>Contia brevicauda</em>, syntype</td>
</tr>
<tr>
<td>3</td>
<td>Flum. Karun</td>
<td>Rud-e Karun, Khuzestan Province, Iran</td>
<td>approx. 31.65 N 48.89 E</td>
<td><em>Ablepharus brandii var. brevipes</em>, 2 syntypes</td>
</tr>
<tr>
<td>4</td>
<td>Flum. Abu-Garia (ad flum. Karun)</td>
<td>Abu Karaniyeh River, Khuzestan Province, Iran</td>
<td>approx. 31.65 N 48.89 E</td>
<td><em>Phyllodactylus eugeniae</em>, 2 syntypes</td>
</tr>
<tr>
<td>5</td>
<td>Gurschir in Arabistano</td>
<td>Golgi, Khuzestan Province, Iran</td>
<td>31.76 N 49.50 E</td>
<td><em>Glauconia hamulirostris</em>, 6 parlectedotypes</td>
</tr>
<tr>
<td>6</td>
<td>Bidezar in Arabistano</td>
<td>Bid Zard, Khuzestan Province, Iran</td>
<td>31.68 N 49.58 E</td>
<td><em>Microgecko helenae</em>, parlectedotype; <em>Glauconia hamulirostris</em>, parlectedotype</td>
</tr>
<tr>
<td>7</td>
<td>Aguljaschker in Arabistano</td>
<td>Ab-e Lashkar, Khuzestan Province, Iran</td>
<td>31.58 N 49.70 E</td>
<td><em>Microgecko helenae</em>, parlectedotype; <em>Glauconia hamulirostris</em>, lectotype and 10 parlectedotypes; <em>Eryx persicus</em>, holotype; <em>Contia brevicauda</em>, 2 syntypes</td>
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...Continued next page
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<tbody>
<tr>
<td>8</td>
<td>Damdeli in Arabistano</td>
<td>southern foothill of Kuh-e-Sere-Dalleh Mountains, Khuzestan Province, Iran</td>
<td>31.52 N 49.81 E</td>
<td><em>Glaucnia hamulirostris</em>, 2 paralectotypes</td>
</tr>
</tbody>
</table>
| 9  | Alchorschir in Arabistano | Alkhorshid, Khuzestan Province, Iran | 31.54 N 49.86 E | *Microgecko heleneae*, lectotype and 4 paralectotypes;  
|    |                           |                                   |             | *Glaucnia hamulirostris*, 4 paralectotypes |
| 10 | Malamir Hollow, ruins of Kale-Madrese settl. | vicinity of Izeh, Khuzestan Province, Iran | 31.81 N 49.87 E | *Glaucnia laticeps*, syntype |
| 11 | Kale-Tol settl.           | Qal’eh Tall, Khuzestan Province, Iran | 31.63 N 49.89 E | *Glaucnia laticeps*, syntype |
| 12 | Dech-i-Diz                | Dehdez, Khuzestan Province, Iran | 31.71 N 50.29 E | *Ablepharus brandtii* var. *brevipes*, syntype |
| 13 | Sarchun—Gamduakal         | Sar Khun, Chaharmahal and Bakhtiari Province, Iran | 31.74 N 50.56 E | *Glaucnia laticeps*, syntype |
| 14 | Qahferokh                 | vicinity of Farokhshahr, Chaharmahal and Bakhtiari Province, Iran | 32.27 N 50.97 E | *Phrynocephalus ananjevae*, holotype and 4 paratypes |
| 15 | Isfagan in Kuchistano occid. | Isfahan, Isfahan Province, Iran | 32.66 N 51.68 E | *Microgecko heleneae*, paralectotype |
| 16 | Pudeschik-Kupa            | Tudeshig, Isfahan Province, Iran | 32.72 N 52.67 E | *Phrynocephalus olivieri* var. *carinipes*, lectotype and paralectotype |
| 17 | Kochrud in prov. Irak-Adshchami | Ghohrud, Isfahan Province, Iran | 33.67 N 51.41 E | *Agama kirmanensis* var. *brevicaula*, holotype |
| 18 | Oppid. Kum in prov. Irak-Adshchami | Qom, Qom Province, Iran | 34.64 N 50.88 E | *Bunopus crassicauda* var. *flavescens*, holotype |
| 19 | Maljat-abad in prov. Irak-Adshchami | Malekabad, Markazi Province, Iran | 34.89 N 50.31 E | *Bunopus crassicauda*, paralectotype |
| 20 | Chara-Magommed-Abad in prov. Irak-Adshchami | Mohammedabad-Khere, Qazvin Province, Iran | 36.02 N 50.07 E | *Bunopus crassicauda*, lectotype |
| 21 | Dshandak in Kuchistano occid. | Jandaq, Isfahan Province, Iran | 34.04 N 54.42 E | *Phrynocephalus olivieri* var. *brevipes*, 2 paralectotypes;  
|    |                           |                                   |             | *Phrynocephalus olivieri* var. *carinipes*, paralectotype |
| 22 | Descht-i-Kewir Desert (22 versts to the south from Gusein-Nan) | 23.5 km south of Hoseiman, Dasht-e Kavir Desert, Semnan Province, Iran | 35.03 N 54.59 E | *Phrynocephalus olivieri* var. *brevipes*, paralectotype |
| 23 | Deh-i-Mulla (Schachrud)   | Dehmolla, Semnan Province, Iran | 36.27 N 54.76 E | *Ablepharus persicus*, holotype |
| 24 | Nasterabad prope Astrabad | Natrabad near Gorgan, Golestan Province, Iran | 36.83 N 54.50 E | *Coluber longissimus* var. *nigra*, holotype |
| 25 | Kircher                   | Khirs-Dere, Ahal Province, Turkmenistan | 37.95 N, 57.45 E | *Eryx jaculus czarewskii*, syntype |

...Continued next page
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<tbody>
<tr>
<td>26</td>
<td>Garmab</td>
<td>Germab, Ahal Region, Turkmenistan</td>
<td>38.01 N 57.74 E</td>
<td><em>Vipera lebetina turanica</em>, 2 paratypes</td>
</tr>
<tr>
<td>27</td>
<td>Gululi-dag</td>
<td>Gelul Mountains, Ahal Province, Turkmenistan</td>
<td>37.79 N 58.13 E</td>
<td><em>Eryx jaculus czarewskii</em>, syntype</td>
</tr>
<tr>
<td>28</td>
<td>Nachduin</td>
<td>Nachduin Mountains, Ahal Province, Turkmenistan</td>
<td>37.66 N 58.37 E</td>
<td><em>Eryx jaculus czarewskii</em>, syntype</td>
</tr>
<tr>
<td>29</td>
<td>Urbs Mesched</td>
<td>Mashhad, Razavi Khorasan Province, Iran</td>
<td>36.32 N 59.57 E</td>
<td><em>Stellio erythrogaster</em> var. pallida, holotype</td>
</tr>
<tr>
<td>30</td>
<td>Naim-abad (Damysan)</td>
<td>Naim-Abad, Razavi Khorasan Province, Iran</td>
<td>36.14 N 58.92 E</td>
<td><em>Phrynocephalus olivieri</em> var. brevipes, lectotype</td>
</tr>
<tr>
<td>31</td>
<td>Ferimun in Persia orientali</td>
<td>Fariman, North Khorasan Province, Iran</td>
<td>35.71 N 59.85 E</td>
<td><em>Stellio erythrogaster</em>, lectotype</td>
</tr>
<tr>
<td>32</td>
<td>Kalender-Abad in Persia orientali</td>
<td>Kalantar, North Khorasan Province, Iran</td>
<td>35.60 N 59.95 E</td>
<td><em>Stellio erythrogaster</em>, paralectotype</td>
</tr>
<tr>
<td>33</td>
<td>Eastern Persia, Kale-Minar mountains</td>
<td>northern slope of Qal‘eh Manar Mountains, Razavi Khorasan Province, Iran</td>
<td>35.47 N 59.89 E</td>
<td><em>Eremias strauchi kopetdaghica</em>, 4 paratypes</td>
</tr>
<tr>
<td>34</td>
<td>Eastern Persia, Kale-Minar mountains</td>
<td>southern slope of Qal‘eh Manar Mountains, Razavi Khorasan Province, Iran</td>
<td>35.40 N 59.93 E</td>
<td><em>Eremias strauchi kopetdaghica</em>, paratype</td>
</tr>
<tr>
<td>35</td>
<td>Feizabad-Mondechi (Feizabad-Nusi) in Persia orientali</td>
<td>Feyzabad, Razavi Khorasan Province, Iran</td>
<td>35.02 N 58.78 E</td>
<td><em>Eremias nigrocellata</em>, 5 paralectotypes; <em>Scapteira lineolata</em>, lectotype and 3 paralectotypes</td>
</tr>
<tr>
<td>36</td>
<td>Zirkuh in Persia orientali</td>
<td>between Sangan and Neyazabad, Rasavi Khorasan Province, Iran</td>
<td>34.31 N 60.25 E</td>
<td><em>Teratoscincus bedriagai</em>, paralectotype</td>
</tr>
<tr>
<td>37</td>
<td>Eastern Persia, Zirkuh Region, Khaus</td>
<td>Khous, Zirkuh District, Ghayen County, South Khorasan Province, Iran</td>
<td>33.99 N 60.01 E</td>
<td><em>Phrynocephalus ornatus vindumi</em>, 5 paratypes</td>
</tr>
<tr>
<td>38</td>
<td>Eastern Persia, Zirkuh, after Gyarmakh</td>
<td>Garmaab, Zirkuh District, Ghayen County, South Khorasan Province, Iran</td>
<td>33.92 N 59.82 E</td>
<td><em>Phrynocephalus ornatus vindumi</em>, 7 paratypes</td>
</tr>
<tr>
<td>39</td>
<td>Tscharachs in terra Zirkuch</td>
<td>Tscharachs, 28 km from Ahangeran, South Khorasan Province, Iran</td>
<td>33.64 N 60.28 E</td>
<td><em>Scapteira persica</em>, 7 syntypes</td>
</tr>
<tr>
<td>40</td>
<td>Eastern Persia, Zirkuh Region, Bamrud aryk</td>
<td>Irrigation canal of Bamrud, Zirkuh District, Ghayen County, South Khorasan Province, Iran</td>
<td>33.64 N 60.08 E</td>
<td><em>Phrynocephalus ornatus vindumi</em>, 9 paratypes</td>
</tr>
<tr>
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<td>Zirkuh in Persia orientali</td>
<td>between Bamrud and Mahmudabad, South Khorasan Province, Iran</td>
<td>33.56 N 60.02 E</td>
<td><em>Teratoscincus bedriagai</em>, paralectotype</td>
</tr>
<tr>
<td>42</td>
<td>Rume in Persia orientali</td>
<td>Rum, South Khorasan Province, Iran</td>
<td>33.45 N 59.19 E</td>
<td><em>Teratoscincus zarudnyi</em>, holotype</td>
</tr>
<tr>
<td>43</td>
<td>Birdschan</td>
<td>Birjand, South Khorasan Province, Iran</td>
<td>32.87 N 59.22 E</td>
<td><em>Testudo zarudnyi</em>, holotype</td>
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...Continued next page
<table>
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</tr>
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<tbody>
<tr>
<td>44</td>
<td>Eastern Persia, Syman-Shahi</td>
<td>Ssaman Shakhi mountains near Birjand, South Khorasan Province, Iran</td>
<td>32.83 N 59.21 E</td>
<td><em>Bufo oblongus</em>, lectotype and paralectotype</td>
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<td>Abas village in Zirkukh, Eastern Persia</td>
<td>Abas, South Khorasan Province, Iran</td>
<td>32.95 N 60.26 E</td>
<td><em>Eryx miliaris incerta</em>, holotype</td>
</tr>
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<td>46</td>
<td>Khadjii-i-du-Chaghi</td>
<td>Khvajeh Dow Chahi well, Nehbandan County, South Khorasan Province, Iran</td>
<td>31.87 N 60.52 E</td>
<td><em>Phrynocephalus ornatus vindumi</em>, 6 paratypes; <em>Teratoscincus bedriagai</em>, lectotype</td>
</tr>
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<td>47</td>
<td>Zirkuh in Persia orientali</td>
<td>between Khvajeh Dow Chahi and Chah-e Gusha wells, South Khorasan Province, Iran</td>
<td>31.79 N 60.54 E</td>
<td><em>Teratoscincus bedriagai</em>, paralectotype</td>
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<td>48</td>
<td>Persia orient., Neh</td>
<td>Nehbandan, South Khorasan Province, Iran</td>
<td>31.54 N 60.04 E</td>
<td><em>Gymnodactylus longipes</em>, lectotype and 8 paralectotypes</td>
</tr>
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<td>49</td>
<td>Labe-Ab in Seistano</td>
<td>Lab-e Bareng, Sistan and Baluchestan Province, Iran</td>
<td>31.12 N 61.05 E</td>
<td><em>Eumedes zarudnyi</em>, paralectotype</td>
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<td>50</td>
<td>Neizar in Seistano</td>
<td>surroundings of Zabol, Sistan and Baluchestan Province, Iran</td>
<td>approx. 31.03 N 61.49 E</td>
<td><em>Eryx miliaris tritus</em>, 2 syntypes</td>
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<td>Neizar in Seistano</td>
<td>Near Afsalabad, surroundings of Zabol, Sistan and Baluchestan Province, Iran</td>
<td>31.01 N 61.39 E</td>
<td><em>Gymnodactylus agamuroides</em>, paralectotype</td>
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<td>52</td>
<td>Neizar in Seistano</td>
<td>probably between Zabol and Varmal, Sistan and Baluchestan Province, Iran</td>
<td>approx. 30.89 N 61.41 E</td>
<td><em>Rana cyanophlyctis var. seistanica</em>, 3 syntypes</td>
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<td>53</td>
<td>Neizar in Seistano</td>
<td>probably between Varmal and Chah Nimeh lake, Sistan and Baluchestan Province, Iran</td>
<td>approx. 30.75 N 61.45 E</td>
<td><em>Gymnodactylus zarudnyi</em>, lectotype and 7 paralectotypes; <em>Teratoscincus bedriagai</em>, paralectotype</td>
</tr>
<tr>
<td>54</td>
<td>Seistan in Persia orientali</td>
<td>between Harmak and Shileh River, Sistan and Baluchestan Province, Iran</td>
<td>30.09 N 60.95 E</td>
<td><em>Teratoscincus bedriagai</em>, 4 paralectotypes</td>
</tr>
<tr>
<td>55</td>
<td>Ziaret in Sargado</td>
<td>Meleksiahk-Ziaret, Saragad Region, Sistan and Baluchestan Province, Iran</td>
<td>29.85 N 60.87 E</td>
<td><em>Bufo viridis</em> var. <em>persica</em>, paralectotype</td>
</tr>
<tr>
<td>56</td>
<td>Duz-Ab in Kirmano orient.</td>
<td>Duz-Abad, Saragad Region, Sistan and Baluchestan Province, Iran</td>
<td>29.50 N 60.86 E</td>
<td><em>Bufo viridis</em> var. <em>persica</em>, lectotype and 2 paralectotypes; <em>Gymnodactylus agamuroides</em>, paralectotype; <em>Teratoscincus microlepis</em>, holotype</td>
</tr>
<tr>
<td>57</td>
<td>Kirmanum orientale</td>
<td>vicinity of Mazel-Ab well, Sistan and Baluchestan Province, Iran</td>
<td>29.29 N 60.75 E</td>
<td><em>Gymnodactylus kirmanensis</em>, lectotype and 7 paralectotypes</td>
</tr>
<tr>
<td>58</td>
<td>Vikus Degak in terra Dizak, Persia orient.</td>
<td>Dehak, Sistan and Baluchestan Province, Iran</td>
<td>28.99 N 60.54 E</td>
<td><em>Alsophylax persicus</em>, holotype</td>
</tr>
</tbody>
</table>

...Continued next page
TABLE 1. (Continued)

<table>
<thead>
<tr>
<th>NN</th>
<th>Original name of locality</th>
<th>Modern name of original locality</th>
<th>Coordinates</th>
<th>Taxa described after specimens collected by Nikolay A. Zarudny*</th>
</tr>
</thead>
<tbody>
<tr>
<td>59</td>
<td>Kurin in Kirmano orient.</td>
<td>Kurin, Sargad Region, Sistan and Baluchestan Province, Iran</td>
<td>28.88 N 60.36 E</td>
<td>Agama kirmanensis, holotype</td>
</tr>
<tr>
<td>60</td>
<td>Flum. Tamin in Sargado</td>
<td>Tamin River, Saragad Region, 20 km SW Ladiz, Sistan and Baluchestan Province, Iran</td>
<td>28.80 N 61.20 E</td>
<td>Bufo viridis var. persica, 2 paralectotypes</td>
</tr>
<tr>
<td>61</td>
<td>Mons Kui-tuftan in Sargado</td>
<td>foot of the volcano of Kuh-e Taftan, Sistan and Baluchestan Province, Iran</td>
<td>28.62 N 61.14 E</td>
<td>Gymnodactylus kirmanensis, 6 paralectypes</td>
</tr>
<tr>
<td>62</td>
<td>Schur-Ab in Kirmano orient.</td>
<td>Shurab, Sistan and Baluchestan Province, Iran</td>
<td>28.15 N 60.29 E</td>
<td>Eumeces zarudnyi, paralectotype</td>
</tr>
<tr>
<td>63</td>
<td>Pendsch-Sara in Kirmano orient.</td>
<td>Panjsareh, Sistan and Baluchestan Province, Iran</td>
<td>27.98 N 60.18 E</td>
<td>Gymnodactylus agamuroides, lectotype</td>
</tr>
<tr>
<td>64</td>
<td>Urbs Bazman</td>
<td>Bazman, Saragad Region, Sistan and Baluchestan Province, Iran</td>
<td>27.86 N 60.18 E</td>
<td>Bufo viridis var. persica, paralectotype; Eumeces zarudnyi, lectotype</td>
</tr>
<tr>
<td>65</td>
<td>Bampur in Kirmano orient.</td>
<td>Bampur, Sistan and Baluchestan Province, Iran</td>
<td>27.19 N 60.46 E</td>
<td>Gymnodactylus sagittifer, lectotype and paralectotype</td>
</tr>
<tr>
<td>66</td>
<td>Farra, in Kirmano orient.</td>
<td>Iranshahr, 32 km from Bampur, Sistan and Baluchestan Province, Iran</td>
<td>27.21 N 60.69 E</td>
<td>Gymnodactylus sagittifer, paralectotype</td>
</tr>
<tr>
<td>67</td>
<td>Sarbaz, Rud-e-Sarbaz River, Eastern Persia</td>
<td>Rud-e-Sarbaz River, Sarbaz, Sistan and Baluchestan, Iran</td>
<td>26.63 N 61.26 E</td>
<td>Bufo persicus, 3 syntypes</td>
</tr>
<tr>
<td>68</td>
<td>Kelif, Buchara orient.</td>
<td>Kelif, Lebap Province, Turkmenistan</td>
<td>37.36 N 66.31 E</td>
<td>Phrynocephalus raddei var. zarudnyi, lectotype and 6 paralectotypes; Eremias bedriagai, holotype</td>
</tr>
<tr>
<td>69</td>
<td>Khadzha-fil</td>
<td>Khodja-Pil, Lebap Region, Turkmenistan</td>
<td>37.95 N 66.63 E</td>
<td>Vipera lebetina turanica, paratype</td>
</tr>
<tr>
<td>70</td>
<td>Tschubek, Buchara orient.</td>
<td>Chubek, Khatlon Province, Tajikistan</td>
<td>37.61 N 69.71 E</td>
<td>Agama reticulata, holotype</td>
</tr>
<tr>
<td>71</td>
<td>Golodnaya Step rail-road station, Samarkand Region</td>
<td>Gulistan, Syrdarya Region, Uzbekistan</td>
<td>40.49 N 68.78 E</td>
<td>Eryx miliaris rarus, syntype</td>
</tr>
<tr>
<td>72</td>
<td>Chomkau-Tau mountains, Khodzhent settl.</td>
<td>near Khujand, Sughd Region, Tajikistan</td>
<td>40.31 N 69.53 E</td>
<td>Vipera lebetina turanica, paratype</td>
</tr>
<tr>
<td>73</td>
<td>upper and middle stream of Diirman river, Turkestan</td>
<td>Dirmensay, South Kazakhstan Province, Kazakhstan</td>
<td>42.11 N 69.72 E</td>
<td>Eryx miliaris tritus, syntype</td>
</tr>
<tr>
<td>74</td>
<td>downstream of Ayu-Tur river</td>
<td>Ayutor River, South Kazakhstan Province, Kazakhstan</td>
<td>42.14 N 70.62 E</td>
<td>Asymblepharus alaicus yakovlevae, paratype</td>
</tr>
</tbody>
</table>

According to available information from curators, museum catalogues, and databases (Tiedemann et al., 1994; Schatti & Perret 1997; Borissenko et al., 2001; Pisanets 2001; Vedmederya et al., 2009; Frost 2018, Uetz et al., 2018,
VertNet 2018) several type specimens were sent to the museums in Europe (London, Great Britain; Wien, Austria, Basel, Switzerland) and to the California Academy of Sciences, United States of America as exchange of collections and are stored there up to these days. Acting from 1903 as professor of Kharkov State University (Kharkiv, Ukraine these days), Nikolsky stored three types of *Glaucenia hamulirostris* Nikolsky [= *Myriopholis macrorhyncha* (Jan)] in the Museum of Nature at V. N. Karazin Kharkiv National University. Two types of *G. hamulirostris* Nikolsky [= *Myriopholis macrorhyncha* (Jan)] were sent to the National Museum of Natural History, Kiev in 13.X.1967. One specimen from the type series of *Phrynocephalus ornatus vindumi* Golubev collected by Zarudny is stored in Zoological Museum, Moscow State University.

In the present manuscript, we provide a complete catalogue of the type specimens of amphibians and reptiles collected by N. Zarudny during his expeditions to Iran, the Middle and the Central Asia. The task of the work was to identify the type localities as accurately as possible with determination of geographic coordinates based on the study of his published itineraries, routes and field diaries and localize them on the maps.

**Material and methods**

Museum abbreviations follow Sabaj (2016), and include: BM: The Natural History Museum, London (formerly British Museum [Natural History]); CAS: California Academy of Sciences, San Francisco; MHNG: Museum d’Histoire Naturelle de Genève, Switzerland; MNKNU: Museum of Nature at V. N. Karazin Kharkiv National University, Kharkiv, Ukraine; NMB (=NMBA); Naturhistorisches Museum Basel; NMNH: National Museum of Natural History at the National Academy of Sciences of Ukraine, Kiev. NMW: Naturhistorisches Museum Wien; ZISP: Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia; ZMMGU: Zoological Museum, Moscow State University. Designation of “ex” denotes the original collection number, now changed.

For the determination of the exact publication dates of the original descriptions published by the Zoological Museum, Imperial Academy of Science, we follow Asanovich, *et al.* (2007). Accurate identification of type localities was made based on the study of N. Zarudny routes, itineraries and field diaries (Zarudny, 1896, 1898, 1902, 1904) as well as the original catalogue notes. To search for coordinates, we used GOOGLE maps (https://www.google.com/maps), the global geographical directory Fallingrain (http://www.fallingrain.com/world/index.html), as well as the topographic maps of the general staff at a scale of 1: 200,000, available as open access on the site http://loadmap.net. The definition of decimal coordinates was carried out with observance of geo-referencing techniques, accurate to the second decimal place.

**Results**

**AMPHIBIA**

**BUFONIDAE**

*Bufotes oblongus* **NIKOLSKY (1896: 372)**

Lectotype (designated by Stöck *et al.* 2001a):

**ZISP 1952.1,** adult female, “Eastern Persia, Syman-Shakhi” [Ssaman Shakhi Mountains near Birjand, South Khorasan Province, Iran, 32.8266 N 59.2146 E]. Leg: N. A. Zarudny, 29.IV.1896.

Paralectotype:

**ZISP 1952.2,** 1 specimen, “Eastern Persia, Syman-Shakhi” [Ssaman Shakhi Mountains near Birjand, South Khorasan Province, Iran, 32.8266 N 59.2146 E]. Leg: N. A. Zarudny, 29.IV.1896.

**Bufo persicus** NIKOLSKY (1904: 97)

Syntypes:

**Bufo viridis var. persica** NIKOLSKY (“1899” 1900: 406)

Lectotype (designated by Stöck \textit{et al.} 2001b):
- ZISP 2058.3, subadult male, “Duz-Ab in Kirmano ori ent” [Duz-Abad, Saragad Region, Sistan and Baluchestan Province, Iran, 29.50 N 60.87 E]. Leg: N. A. Zarudny, 14.VI.1898.
- Paralectotypes:
  - ZISP 2056, 1 specimen, “Urbs Bazman” [Bazman, Saragad Region, Sistan and Baluchestan Province, Iran, 27.86 N 60.18 E]. Leg: N. A. Zarudny, 6.VIII.1898.
  - ZISP 2058, 2 specimens, “Duz-Ab in Kirmano orient” [Duz-Abad, Saragad Region, Sistan and Baluchestan Province, Iran, 29.50 N 60.87 E]. Leg: N. A. Zarudny, 14.VI.1898.
  - ZISP 2059, 1 specimen, “Ziare in Sargado” [Meleksiahk-Ziarat, Saragad Region, Sistan and Baluchestan Province, Iran, 29.85 N 60.87 E]. Leg: N. A. Zarudny, 4.IX.1898.
- Present name: *Bufoates surdus surdus* (Boulenger, 1891) \textit{fide} Stöck \textit{et al.} (2001b) and Frost (2018).

**DICROGLOSSIDAE**

*Rana cyanophlyctis var. seistanica* NIKOLSKY (“1899” 1900: 406)

Syntypes:
- ZISP 2053, 3 specimens, “Neizar in Seistano” [probably between Zabol and Varmal, Sistan and Baluchestan Province, Iran, approx. 30.89 N 61.41 E]. Leg: N. A. Zarudny, 16.V.1898.
- Present name: *Euphlyctis cyanophlyctis* (Schneider, 1799) \textit{fide} Frost (2018).

**REPTILIA**

**TESTUDINES**

**TESTUDINIDAE**

*Testudo zarudnyi* NIKOLSKY (1896: 369)

Holotype:

**SQUAMATA**

**AMPHISBAENIA**
TROGONOPHIDAE

*Diplometopon zarudnyi* NIKOLSKY (“1905” 1907: 277)

Holotype:


Remarks: This species served as the type of the genus *Diplometopon* Nikolsky, “1905” 1907 by monotypy.

SAURIA

AGAMIDAE

*Agama kirmanensis* NIKOLSKY (“1899” 1900: 389)

Holotype:


*Agama kirmanensis* var. *brevicauda* NIKOLSKY (“1905” 1907: 272)

Holotype:


*Agama reticulata* NIKOLSKY (1911: 272)

Holotype:


*Phrynocephalus ananjevae* MELNIKOV, MELNIKOVA, NAZAROV, RAJABIZADEH (2013: 40)

Holotype:

**ZISP 10256.1**, adult male, “Qahferokh” [vicinity of Farokhshahr, Chaharmahal and Bakhtiari Province, Iran, approx. 32.27 N 50.97 E]. Leg: N. A. Zarudny, 14.04.1904.

Paratypes:

**ZISP 10256.2–3**, 2 adult females, “Qahferokh” [vicinity of Farokhshahr, Chaharmahal and Bakhtiari Province, Iran, approx. 32.27 N 50.97 E]. Leg: N. A. Zarudny, 14.04.1904.

**ZISP 10256.4 and ZISP 10257**, 2 subadult males, “Qahferokh” [vicinity of Farokhshahr, Chaharmahal and Bakhtiari Province, Iran, approx. 32.27 N 50.97 E]. Leg: N. A. Zarudny, 14.04.1904.


Remarks: The original description of this subspecies was based not only on Zarudny’s material.
Phrynocephalus olivieri var. brevipes NIKOLSKY (“1905” 1907: 274)

Lectotype (designated by Barabanov & Ananjeva 2007):
Paralectotypes:
ZISP 10344, 1 specimen, “Descht-i-Kewir Desert (23.5 km to the south from Gusein-Nan)” [23.5 km south of Hoseinan, Dasht-e Kavir Desert, Semnan Province, Iran, 35.03 N 54.59 E]. Leg. N. A. Zarudny, 3.XI.1903.

Present name: Phrynocephalus scutellatus (Olivier, 1807) fide Anderson (1999).
Remarks: Two paralectotypes (ZISP 10239.1-2) could not be located in the ZISP collection.

Phrynocephalus olivieri var. carinipes NIKOLSKY (“1905” 1907: 273)

Lectotype (designated by Barabanov & Ananjeva, 2007):
ZISP 10236, adult female, “Pudeschk-Kupa” [Tudeshg, Isfahan Province, Iran, 32.72 N 52.67 E]. Leg: N. A. Zarudny, 1903.
Paralectotypes:
ZISP 10240, 1 specimen, “Dschandak in Kuchistano occid.” [Jandaq, Isfahan Province, Iran, 34.04 N 54.42 E]. Leg: N. A. Zarudny, 8.XI.1903.
ZISP 10241, 1 specimen, “Pudeschk-Kupa” [Tudeshg, Isfahan Province, Iran, 32.72 N 52.67 E]. Leg: N. A. Zarudny, 1903.

Present name: Phrynocephalus scutellatus (Olivier, 1807) fide Anderson (1999).

Phrynocephalus ornatus vindumi GOLUBEV (1998: 163)

Paratypes:
ZISP 8768.1–8768.7, 7 specimens: 2 adult males, 4 adult females, 1 subadult female, “Eastern Persia, Zirkuh, after Gyarmakh” [after Garmaab, Razavi Khorasan Province, Iran, approx. 33.92 N 59.82 E]. Leg: N. A. Zarudny, 30.VI.1896.
ZISP 9207.1-5, 5 adult specimens: 4 males, 1 female, “Eastern Persia, Zirkuh Region, Khouz” [Khouz, on the border of Razavi Khorasan and South Khorasan Provinces, Iran, approx. 33.9935 N 60.0126 E]. Leg: N. A. Zarudny, 18.IV.1898.
ZISP 9920.1-6, 6 adult males, “Eastern Persia, Neh-i-Benden Region, Khadj-i-du-chaghi well” [Khvajeh Dow Chahi well, Nehbandan County, South Khorasan Province, Iran, 31.87 N 60.52 E]. Leg: N. A. Zarudny, 2.VII.1901.
ZISP 9921.1-9, 9 juveniles. “Eastern Persia, Zirkuh Region, Bamrud aryk” [irrigation canal of Bamrud, South Khorasan Province, Iran, 33.64 N 60.08 E]. Leg: V. A. Zarudny, 20.VII.1901.
NMB (NMBA) 4950, 1 adult male, “Chous in terra Zirkuh (Iran)” [Khouz, Zirkuh District, Ghayen County, Southern Khorasan Province, Iran, N 35.69 E 54.61, no exact collection date, no exact information about collector].
NMW 24796.1-2, adult male and female, “Ost Persien” (= eastern Iran)” [Eastern Iran, no exact locality, no collection date, no exact information about collector].
ZMMGU 2114, adult male, “Eastern Persia” [Eastern Iran, no exact locality, no collection date, no exact information about collector].

Remarks: The original description of this subspecies was based not only on Zarudny’s material.
*Phrynocephalus raddei* var. *zarudnyi* NIKOLSKY (1915: 193)

Lectotype (designated by Barabanov & Ananjeva, 2007):


Paralectotypes:


*Stellio erythrogaster* NIKOLSKY (1896: 370)

Lectotype (designated by Rastegar-Pouryani & Nilson 2002):


Paralectotype:


*Stellio erythrogaster* var. *pallida* NIKOLSKY (1897: 319)

Holotype:


**GEKKONIDAE**

*Alsophylax persicus* NIKOLSKY (1903: 95)

Holotype:

**ZISP 10005**, “Vikus Degak in terra Dizak, Persia orient.” [Dehak, Sistan and Baluchestan Province, Iran, 28.99 N 60.54 E]. Leg: N. A. Zarudny, 09.II.1901.


*Bunopus crassicauda* NIKOLSKY (“1905” 1907: 261)

Lectotype (designated by Szczerbak & Golubev 1986):


Paralectotype:


Remarks: paralectotype (ZISP 10345) could not be located in the ZISP collection.
Bunopus crassicauda var. flavescens NIKOLSKY ("1905" 1907: 264)

Holotype:


Present name: Bunopus crassicauda Nikolsky, “1905” 1907 [our data].

Gymnodactylus agamuroides NIKOLSKY ("1899" 1900: 384)

Lectotype (designated by Szczerek & Golubev 1986):

ZISP 9327, adult male, “Pendsch-Sara in Kirmano orient.” [Panjsareh, Sistan and Baluchestan Province, Iran, 27.98 N 60.18 E]. Leg: N. A. Zarudny, 10.VIII.1898.

Paralectotypes:


ZISP 9328, 1 specimen, “Duz-Ab in Kirmano orient” [Duz-Abad, Saragad Region, Sistan and Baluchestan Province, Iran, 29.50 N 60.86 E]. Leg: N. A. Zarudny, 14.VI.1898.

Present name: Cyrtopodion agamuroides (Nikolsky, 1900) fide Bauer et al. (2013).

Remarks: Specimen ZISP 9328 was reidentified by Nazarov et al. (2010) as Cyrtopodion golubevi Nazarov, Ananjeva, Radjabizadeh (2010). One paralectotype (ZISP 9326) could not be located in the ZISP collection.

Gymnodactylus kirmanensis NIKOLSKY ("1899" 1900: 381)

Lectotype (designated by Szczerek & Golubev 1986):

ZISP 9330.2, adult male, “Kirmanum orientale” [vicinity of Mazel-Ab well, Sistan and Baluchestan Province, Iran, 29.29 N 60.75 E]. Leg: N. A. Zarudny, 17.VI.1898.

Paralectotypes:

NMW 17388–17389, 2 specimens, “Kirman, E-Persien” [vicinity of Mazel-Ab well, Sistan and Baluchestan Province, Iran, 29.29 N 60.75 E]. Leg: N. A. Zarudny, 1898.


ZISP 9330.1, 3-6, 5 specimens, “Kirmanum orientale” [vicinity of Mazel-Ab well, Sistan and Baluchestan Province, Iran, 29.29 N 60.75 E]. Leg: N. A. Zarudny, 17.VI.1898.

Present name: Cyrtopodion kirmanense (Nikolsky, 1900) fide Bauer et al. (2013).

Remarks: Six paralectotypes (ZISP 9329.1-6) could not be located in the ZISP collection.

Gymnodactylus longipes NIKOLSKY (1896: 369)

Lectotype (designated by Szczerek & Golubev 1986):

ZISP 8810.1, adult female, “Persia orient., Neh” [Nehbandan, South Khorasan Province, Iran, 31.54 N 60.04 E]. Leg: N. A. Zarudny, 1896.

Paralectotypes:

NMW 17392–17393, 2 specimens, “Nech, E-Persien” [Nehbandan, South Khorasan Province, Iran, 31.54 N 60.04 E]. Leg: N. A. Zarudny, 1896.

ZISP 8809.1-3, 3 specimens, “Persia orient., Neh” [Nehbandan, South Khorasan Province, Iran, 31.54 N 60.04 E]. Leg: N. A. Zarudny, 1896.

ZISP 8810.2-3, 2 specimens, “Persia orient., Neh” [Nehbandan, South Khorasan Province, Iran, 31.54 N 60.04 E]. Leg: N. A. Zarudny, 1896.

ZISP 8811, 1 specimen, “Persia orient., Neh” [Nehbandan, South Khorasan Province, Iran, 31.54 N 60.04 E]. Leg: N. A. Zarudny, 1896.
Remarks: 3 paralectotypes (ZISP 8809.1-3) could not be located in the ZISP collection.

**Gymnodactylus sagittifer** NIKOLSKY (“1899” 1900: 379)

Lectotype (designated by Szczerekba & Golubev 1986):

- ZISP 9331, adult male, “Bampur in Kirmano orient.” [Bampur, Sistan and Baluchestan Province, Iran, 27.19 N 60.46 E]. Leg: N. A. Zarudny, 30.VII.1898.

Paralectotypes:

- ZISP 9332, 1 specimen, “Farra in Kirmano orient.” [Iranshahr, Sistan and Baluchestan Province, Iran, 27.211 N 60.69 E]. Leg: N. A. Zarudny, 25.VII.1898.
- ZISP 9333, 1 specimen, “Bampur in Kirmano orient.” [Bampur, Sistan and Baluchestan Province, Iran, 27.19 N 60.46 E]. Leg: N. A. Zarudny, 10.VII.1898.


**Gymnodactylus zarudnyi** NIKOLSKY (“1899” 1900: 385)

Lectotype (designated by Szczerekba & Golubev 1986):


Paralectotypes:

- ZISP 9334.2-8, 7 specimens, “Neizar in Seistano” [probably between Varmal and Chah Nameh Lake, Sistan and Baluchestan Province, Iran, approx. 30.75 N 61.45 E]. Leg: N. A. Zarudny, 21-24.V.1898.


**Microgecko helenae** NIKOLSKY (“1905” 1907: 261)

Lectotype (designated by Szczerekba & Golubev 1986):

- ZISP 10242.1, adult female, “Alchorschir in Arabistano” [Alkhorshid, Khuzestan Province, Iran, 31.54 N 49.86 E]. Leg.: N. A. Zarudny, 30.XII.1903.

Paralectotypes:

- ZISP 10242.2-5, 4 specimens, “Alchorschir in Arabistano” [Alkhorshid, Khuzestan Province, Iran, 31.54 N 49.86 E]. Leg: N. A. Zarudny, 30.XII.1903.
- ZISP 10243, 1 specimen, “Isfagan in Kuchistan ocidd.” [Isfahan, Isfahan Province, Iran, 32.66 N 51.68 E]. Leg: N. A. Zarudny, 2.XII.1903.

Remarks: This species served as the type of the genus *Microgecko* Nikolsky, “1905” 1907 by monotypy. Lectotype (ZISP 10242.1) could not be located in the ZISP collection.

**PHYLLODACTYLIDAE**

**Phylloodactylus eugeniae** NIKOLSKY (“1905” 1907: 268)**
Syntypes:


ZISP 10262.1-7, 7 specimens, “Urbs Dizful in Arabistano” [Dezful, Khuzestan Province, Iran, 32.38 N 48.41 E]. Leg: N. A. Zarudny [no date of collecting].


ZISP 10349, 1 specimen, “Urbs Dizful” [Dezful, Khuzestan Province, Iran, 32.38 N 48.41 E]. Leg: N. A. Zarudny, 12.III.1904.


Remarks: A. M. Nikolsky in the species description listed among the paratypes one egg (as ZISP 10367) collected by N. A. Zarudny from Dezful in 12-14.III.1904. It does not appear in the ZISP catalogue.

**SPHAERODACTYLIDAE**

*Teratoscincus bedriagai* NIKOLSKY (1899: 146)

Lectotype (designated by Szczerbak & Golubev 1986):

ZISP 9161, adult male, “Khadij-i-du-Chaghi” [Khvajeh Dow Chahi well, Nehbandan County, South Khorasan Province, Iran, 31.87 N 60.52 E]. Leg: N. A. Zarudny, 5.V.1898.

Paralectotypes:

BM 1946.8.23.39, 1 specimen, “Sistan (Persia)”. [Sistan and Baluchestan Province, Iran, no exact locality]. Leg: N. A. Zarudny, 1898 [no collection date].

ZISP 9157, 1 specimen, “Zirkuh in Persia orientali” [between Sangan and Neyazabad, Rasavi Khorasan Province, Iran, 34.31 N 60.25 E]. Leg: N. A. Zarudny, 2.IV.1898.

ZISP 9158, 1 juvenile, “Zirkuh in Persia orientali” [between Khvajeh Dow Chahi and Chah-e Gusha wells, South Khorasan Province, Iran, 31.79 N 60.54 E]. Leg: N. A. Zarudny, 6.V.1898.

ZISP 9159.1-3, 3 specimens, “Seistan in Persia orientali” [between Harmak and Shileh River, Sistan and Baluchestan Province, Iran, 30.09 N 60.95 E]. Leg: N. A. Zarudny, 6.IX.1898.

ZISP 9160, 1 subadult, “Zirkuh in Persia orientali” [between Bamrud and Mahmudabad, South Khorasan Province, Iran, 33.56 N 60.02 E]. Leg: N. A. Zarudny, 13.X.1898.

ZISP 9162, 1 subadult, “Seistan in Persia orientali” [between Harmak and Shileh Rivers, Sistan and Baluchestan Province, Iran, 30.09 N 60.95 E]. Leg: N. A. Zarudny, 9.VI.1898.

ZISP 9163, 1 specimen, “Seistan in Persia orientali” [probably between Varmal and Chah Nimeh Lake, Sistan and Baluchestan Province, Iran, approx. 30.75 N 61.45 E]. Leg: N. A. Zarudny, 23.V.1898.


Remarks: The original description of this species was published in October 1899 (Asanovich *et al* 2006). One paralectotype (ZISP 9163) could not be located in the ZISP collection.

*Teratoscincus microlepis* NIKOLSKY (1899: 145)

Holotype:

ZISP 9164, adult male, “Duz-ab in Kirmano orientali” [Duz-Abad, Saragad Region, Sistan and Baluchestan Province, Iran, 29.50 N 60.86 E]. Leg: N. A. Zarudny, 15.VI.1898.


Remarks: The original description of this species was published in October 1899 (Asanovich *et al* 2006).
Teratoscincus zarudnyi Nikolsky (1896: 370) (Fig. 3)

Holotype:
   **ZISP 8804**, “Rume in Persia orientali” [Rum, South Khorasan Province, Iran, 33.45 N 59.19 E]. Leg: N. A. Zarudny, 15.V.1896 (Fig. 3).


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**FIGURE 3.** *Teratoscincus zarudnyi* Nikolsky 1896. Drawing from description of Nikolsky (1896, tab. XVIII).
LACERTIDAE

_Eremias bedriagai_ NIKOLSKY (1911: 278)

Holotype:


_Eremias nigrocellata_ NIKOLSKY (1896: 371)

Lectotype:

**ZISP 8800**, adult male, “Seistan in Persia orientali” [Sistan and Baluchestan Province, Iran, no exact locality].

Leg: N. A. Zarudny, V-VI.1896 [no exact date of collecting].

Paralectotypes:


_Eremias strauchi kopetdaghica_ SZCZERBAK (1972: 83)

Paratypes:


Remarks: The original description of this subspecies was based not only on Zarudny’s material.

_Eremias (Scapteira) zarudnyi_ LANTZ (1928: 51)

Nomen novum pro _Scapteira persica_ Nikolsky 1900, nec _Eremias persica_ Blanford 1874. Ineich & Doronin (2019) provided data and comments on the type series, an English translation of the French description of _E. zarudnyi_, designate, and describe a lectotype for the species.


_Scapteira lineolata_ NIKOLSKY (1896: 371)

Lectotype (designated by Szczerbak 1974):

**ZISP 8801.1**, “Feizabad-Nusi in Persia orientali” [Feizabad, Razavi Khorasan Province, Iran, 35.02 N 58.78 E].

Leg: N. A. Zarudny, IV-V.1896.

Paralectotypes:

**ZISP 8801.2-4**, 3 specimens, “Feizabad-Nusi in Persia orientali” [Feizabad, Razavi Khorasan Province, Iran, 35.02 N 58.78 E]. Leg: N. A. Zarudny, IV-V.1896.
Remarks: Lectotype (ZISP 8801.1) could not be located in the ZISP collection.

**Scapteira persica** NIKOLSKY (“1899” 1900: 395)

Syntypes:
- **ZISP 9322.1-3**, 3 specimens, “Tscharachs in terra Zirkuch” [Tscharachs, 28 km from Ahangeran, South Khorasan Province, Iran, 33.64 N 60.28 E]. Leg: N. A. Zarudny, 25.IV.1898.
- **ZISP 9323.1-4**, 4 specimens, “Tscharachs in terra Zirkuch” [Tscharachs, 28 km from Ahangeran, South Khorasan Province, Iran, 33.64 N 60.28 E]. Leg: N. A. Zarudny, 25.IV.1898.
Remarks: these specimens are also the types of *Eremias (Scapteira) zarudnyi* Lantz 1928.

**SCINCIDAE**

**Ablepharus brandtii var. brevipes** NIKOLSKY (“1905” 1907: 283)

Syntypes:
Remarks: these specimens are also the types of *Ablepharus pannonicus* Lichtenstein, 1823 *fide* Anderson (1999).

**Ablepharus persicus** NIKOLSKY (“1905” 1907: 283)

Holotype:
- **ZISP 10342**, “Deh-i-Mulla (Schachrud)” [Dehmolla, Semnan Province, Iran, 36.27 N 54.76 E]. Leg: N. A. Zarudny, 17.X.1903.
Remarks: these specimens are also the types of *Ablepharus pannonicus* Lichtenstein, 1823 *fide* Anderson (1999).

**Asymblepharus alaicus yakovlevae** EREMCHENKO (1983: 40)

Paratypes:
- **ZISP 10542.1-3**, 3 specimens, “downstream of Ayu-Tur River” [Ayutor River, South Kazakhstan Province, Kazakhstan, 42.14 N 70.62 E]. Leg: N. A. Zarudny, VI.1907.
Remarks: The original description of this subspecies was based not only on Zarudny’s materials.

**Eumeces zarudnyi** NIKOLSKY (“1899” 1900: 399)

Lectotype (designated by Taylor “1935” 1936):
- **ZISP 9339**, “Urbs Bazman in Kirmano orient.” [Bazman, Sistan and Baluchestan Province, Iran, 27.86 N 60.18 E]. Leg: N. A. Zarudny, 3.VIII.1898.
Paratypotypes:
ZISP 9341, 1 specimen, “Schur-Ab in Kirmano orient.” [Shurab, Sistan and Baluchestan Province, Iran, 28.15 N 60.29 E]. Leg: N. A. Zarudny, 11.VIII.1898.


Remarks: Lectotype (ZISP 9339) and one of the paralectotypes (ZISP 9341) could not be located in the ZISP collection (Barabanov & Milto 2017).

**OPHIDIA**

**LEPTOTYPHLOPIDAE**

*Glauconia hamulirostris* NIKOLSKY (“1905” 1907: 286)

Lectotype (designated by Kramer & Schnurrenberger 1963):


Paralectotypes:


NMNH 872.2287, 1 specimen, “Eastern Persia” [Iran, no exact locality]. Leg: N. A. Zarudny, 1904.

MNKNU 1875, 2 specimens, “Persia” [probably Khuzestan Province, Iran, no exact locality]. Leg: N. A. Zarudny, 1904. (Vedmederya et al., 2009).

MNKNU 8841, 1 specimen, “Persia” [Iran, no exact locality]. Leg: N. A. Zarudny, 1904 (Vedmederya et al., 2009).


ZISP 10298.1-4, 4 specimens, “Alchorschir in Arabistano” [Ala Khvorshid, Khuzestan Province, Iran, 31.54 N 49.86 E]. Leg: N. A. Zarudny, 30.III.1904.

ZISP 10299.2-9, 8 specimens, “Aguljaschker in Arabistano” [Ab-e Lashkar, Khuzestan Province, Iran, 31.58 N 49.70 E]. Leg: N. A. Zarudny, 28.III.1904.


ZISP 10348, 1 specimen, “Dizful in Arabistano” [Dezful, Khuzestan Province, Iran, 32.38 N 48.41 E]. Leg: N. A. Zarudny, 17.III.1904.

Present name: *Myriopholis macrorhyncha* (Jan, 1860) fide Adalsteinsson et al. (2009).

Remarks: According Kramer & Schnurrenberger (1963) lectotype stored in MHNG (MHNG 1326.72), but currently lectotype is located in Zoological Institute, St. Petersburg under original catalogue number (ZISP 10299.1).

*Glauconia laticeps* NIKOLSKY (“1905” 1907: 288)

Syntypes:


**BOIDAE**

*Eryx jaculus czarewskii* NIKOLSKY (1916: 326)

Syntypes:
- **ZISP 8463**, 1 specimen, “Nachduin” [Nachduin Mt., Ahal Province, Turkmenistan, 37.66 N 58.37 E]. Leg: N. A. Zarudny, 1892.
- **ZISP 8489**, 1 specimen, “Kircher” [Khirs-Dere, Ahal Province, Turkmenistan, 37.95 N, 57.45 E]. Leg: N. A. Zarudny, 1892.
- **ZISP 8711.1-2**, 2 specimens, “Kopet-dag orient.” [Kopet Dag Mountains, Ahal Province, Turkmenistan, no exact locality]. Leg. N. A. Zarudny, 1892.


*Eryx miliaris incerta* TZAREWSKY (1915: 359)

Holotype:
- **ZISP 9273**, “Abas village in Zirkukh, Eastern Persia” [Abas, South Khorasan Province, Iran, 32.95 N 60.26 E]. Leg. N. A. Zarudny, 28.IV.1898.


*Eryx miliaris rarus* TZAREWSKY (1915: 352)

Syntype:


Remarks: The original description of this subspecies was based not only on Zarudny’s material.

*Eryx miliaris tritus* TZAREWSKY (1915: 355)

Syntypes:
- **ZISP 9272.1-2**, 2 specimens, “Neizar in Seistan” [surroundings of Zabol, Sistan and Baluchestan Province, Iran, approx. 31.03 N 61.49 E]. Leg: N. A. Zarudny, 19-20.V.1898. –
- **ZISP 10638**, 1 specimen, “upper and middle stream of Diirman River, Turkestan” [Dirmensay, South Kazakhstan Province, Kazakhstan, 42.11 N 69.72 E]. Leg: N. A. Zarudny, 7.VIII.1907.

Present name: this taxon is described on the basis of 13 specimens belonging to two different species *Eryx miliaris* (Pallas, 1773) and *Eryx tataricus* (Lichtenstein, 1823).

Remarks: The original description of this subspecies was based not only on Zarudny’s material.

*Eryx persicus* NIKOLSKY (“1905” 1907: 290)

Holotype:

COLUBRIDAE

*Coluber longissimus var. nigra* NIKOLSKY (“1905” 1907: 293)

Holotype:

**ZISP 10334**, “Nasterabad prope Astrabad” [Natrabad near Gorgan, Golestan Province, Iran, 36.83 N 54.50 E].
Leg. N. A. Zarudny 5.X.1903.


*Contia brevicauda* NIKOLSKY (“1905” 1907: 296)

Syntypes:

**ZISP 10322.1-2**, 2 specimens, “Urbs Dizful in Arabistano” [Dezful, Khuzestan Province, Iran, 32.38 N 48.41 E].
Leg: N. A. Zarudny, 11-18.III.1904.

**ZISP 10331**, 1 specimen, “Urbs Dizful in Arabistano” [Dezful, Khuzestan Province, Iran, 32.38 N 48.41 E].
Leg: N. A. Zarudny, 12.III.1904.

**ZISP 10332**, 1 specimen, “Nasrie in Arabistano” [Ahvaz, Khuzestan Province, Iran, 31.32 N 48.67 E].
Leg: N. A. Zarudny, 23.II.1904.

**ZISP 10347.1-2**, 2 specimens, “Aguljaschker in Arabistano” [Ab-e Lashkar, Khuzestan Province, Iran, 31.58 N 49.70 E].
Leg: N. A. Zarudny, 28. III.1904.


Remarks: In the original description a specimens from Aguljaschker (ZISP 10347) was erroneously mentioned under number ZISP 10239.

*Contia persica var. nigrofasciata* NIKOLSKY (“1905” 1907: 298)

Holotype:

**ZISP 10323**, “Urbs Dizful (Arabistano)” [Dezful, Khuzestan Province, Iran, 32.38 N 48.41 E].
Leg. N. A. Zarudny, 16.III.1904.


*Lytorhynchus gaddi* NIKOLSKY (“1905” 1907: 294)

Syntypes:

**ZISP 10288.1-2**, 2 specimens, “Dizful in Arabistano” [Dezful, Khuzestan Province, Iran, 32.36 N 48.41 E].
Leg. N. A. Zarudny, 14-16.III.1904.


VIPERIDAE

*Vipera lebetina turanica* CHERNOV (1939: 180)

Paratypes:

**ZISP 6476**, 1 specimen, “Germau” [Germab, Ahal Region, Turkmenistan, 38.01 N, 57.74 E].
Leg: N. A. Zarudny, 1885. –

**ZISP 8482**, 1 specimen, “Garmab” [Germab, Ahal Region, Turkmenistan, 38.01 N, 57.74 E].
Leg: N. A. Zarudny, 1892. –

**ZISP 10761**, 1 head, “Khadzha-fil” [Khodja-Pil, Lebap Region, Turkmenistan, 37.95 N 66.63 E].
Leg: N. A. Zarudny, 12.V.1910. –
ZISP 13768, 1 specimen, “Chomka-Tau Mt., Khodzhent settl.” [near Khujand, Sughd Region, Tajikistan, approx. 40.31 N 69.53 E]. Leg: N. A. Zarudny, 1907.


**Conclusions**

A complete catalogue is provided for the type specimens of amphibians and reptiles collected by Nikolay A. Zarudny and stored mostly in the herpetological collection of the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZISP), as of August, 2018. These type specimens are of special value both in the historical context and for taxonomic, phylogenetic and ecological studies. They served as a basis for the description of two new genera, *Microgecko* and *Diplometopon*, and 51 new species and subspecies of turtles and squamate reptiles (Sauria and Ophidia). The set of type specimens contains a total of 270 types (holotypes, paratypes, syntypes, lectotypes and paralectotypes), representing 51 taxa and nomenclature names of species and subspecies from one family of turtles, six lizard families and four snake families from 74 type localities (Table 2). Twenty two taxa are regarded currently as valid. A majority of taxa of amphibians and reptiles were described by A. M. Nikolsky. Later, after examination of specimens collected in Iran and the Middle Asia by other herpetologists, revealed new species and subspecies that have been described. Sergey F. Tzarewsky (1887-1971) described 3 taxa following a taxonomic revision of boid snakes of the genus *Eryx* (Tzarewsky 1915) and Louis Amédée Lantz (1886-1953) described *Eremias* (*Scapteira*) *zarudnyi* Lantz (1928: 51) as a result of the revision of the lacertid lizard genus *Eremias*. During the Soviet period, Sergey A. Chernov (1903-1964) in his taxonomic study of the Levantine Vipers used Zarudny’s material as a basis for describing *Vipera lebetina turanica* Chernov (1939). Nikolay N. Szczepak (1928-1998) revising the racerunners of the genus *Eremias* (Szczepak 1972) and Valery K. Eremchenko (1949-2014) while working with Palearctic

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**Table 2.** Number of taxa described after Zarudny’s collection and the number of type specimens.

<table>
<thead>
<tr>
<th>AMPHIBIANS AND REPTILE FAMILY</th>
<th>Number of taxa described</th>
<th>Number of type specimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUFONIDAE</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>DICROGLOSSIDAE</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>TESTUDINIDAE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TROGONOPHIDAE</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>AGAMIDAE</td>
<td>10</td>
<td>55</td>
</tr>
<tr>
<td>GEKKONIDAE</td>
<td>9</td>
<td>49</td>
</tr>
<tr>
<td>PHYLLODACTYLIDAE</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>SPHAERODACTYLIDAE</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>LACERTIDAE</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>SCINCIDAE</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>LEPTOTYPHLOPIDAE</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>BOIDAE</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>COLUMBRIDAE</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>VIPERIDAE</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>51</strong></td>
<td><strong>270</strong></td>
</tr>
</tbody>
</table>
skinks (Eremchenko 1983), described new taxa of lacertid and scincid lizards on the base of Zarudny’s specimens. Zarudny’s collections from the Iranian territory were used in the study of the complex taxonomic group of agamid lizard of the genus *Phrynocephalus* by Golubev (1998) and these days by an international team of researchers using both morphological and molecular methods (Melnikov et al., 2013).

FIGURE 4. Type localities of taxa described after specimens collected by N. Zarudny in Iran and Turkmenistan. See Table 1 for more information.

FIGURE 5. Type localities of taxa described after specimens collected by N. Zarudny in Middle and Central Asia. See Table 1 for more information.
Among the 270 specimens from 74 localities (63—in Iran and 11—in Middle Asia, 4 of which are located in Turkmenistan in the border with Iran) (Figs. 4, 5; Table 1) there are 15 specimens of amphibians, 1 specimen of turtles, 1 amphibiaenian, 190 lizards and 63 snakes (Nikolsky 1896, 1897, 1899a, 1899b (1900), 1903, 1905 (1907), 1911, 1915, 1916] (Table 2). Of these 270 specimens, 1 is stored in Moscow (ZMMGu), 6 in Wien (NMW), 1 in London (BM), 1 in Basel (NMB), 1 in Kiev (NMNH), 3 in Kharkiv (MHNG) and 2 in San Francisco (CAS) and all remaining ones are in ZISP.

Recent taxonomic studies and, in particular, of cryptic diversity is increasingly turning to the careful study of Nikolay A. Zarudny’s collections and itineraries and to attempts for the molecular identification of these historical specimens. These materials remain a source of rich information on the history of the diversity and distribution of Iranian amphibian and reptile diversity. An example of a successful study of museum specimens using modern molecular methods is a recent study of the so-called “historical DNA” of a type specimen of the nineteenth-century turtle, *Testudo zarudnyi* Nikolsky, 1896 (Parham et al., 2012).

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