Supplementary electronic information 1 to Bondarenko & Utescher – *Botanica Pacifica* 2025. 14(1). List of the selected early Paleogene fossil sites of East Asia.

Site No	Location	Coordinate Lat	Coordinate Lon	Age control	PA No	Formation/group (member)	Age	Type of flora	References
1	Novosibirskie Islands, Republic of Sakha, Russia	75°53'	143°91'	IRC, D, GD	1	Anzhuiskaya	EE	P, C	Fradkina (1995), Fradkina et al. (1979), Grinenko et al. (1989, 1997), Kulkova (1973), Suan et al. (2017)
2	Bykovskaya Channel, Republic of Sakha, Russia	72°20'	127°90'	IRC, D	2	Kengdeiskaya	EE	P, L	Budantsev (1983), Fradkina (1995), Grinenko & Kiseleva (1971), Grinenko et al. (1989, 1997)
3	Kengdei, Republic of Sakha, Russia	71°79'	124°98'	IRC, Mo	3	Kengdeiskaya	EE	P, L	Fradkina (1995), Grinenko et al. (1989, 1997)
4	Sogo, Republic of Sakha, Russia	71°50'	128°90'	IRC	4	Soginskaya (upper)	LP	P	Fradkina (1995), Grinenko et al. (1989, 1997)
				IRC	5	Soginskaya (lower)	LP	P	Fradkina (1995), Grinenko & Fradkina (1988), Grinenko et al. (1989, 1997)
5	Kunga, Republic of Sakha, Russia	71°28'	128°99'	IRC, D	6	Kengdeiskaya	EE	P, L	Fradkina (1995), Grinenko et al. (1989, 1997), Laukhin et al. (1988)
				IRC	7	Emgend'enskaya	EE	P	Fradkina (1995), Grinenko et al. (1989, 1997)
6	Tastakh Lake, Republic of Sakha, Russia	70°90'	145°60'	IRC	8	Tastakhskaya	EE	P, L	Budantsev (1983), Fradkina (1995), Kryshtofovich (1958), Kulkova (1971, 1973)
7	Kolyma1, Republic of Sakha, Russia	68°70'	158°50'	IRC, SC	9	Timkinskaya	LP	P	Fradkina (1985, 1995), Fradkina & Laukhin (1984), Grinenko et al. (1989, 1997), Zharikova et al. (1982)
8	Yarovaya91, Chukotka Autonomous Region, Russia	67°80'	161°20'	IRC	10	Khetachanskaya	LP	P	Belaya & Litvinenko (1988), Fradkina (1995), Grinenko et al. (1997)
9	Diring-Yuryue15, Republic of Sakha, Russia	67°18'	135°07'	IRC, SC	11	Dirinskaya	EE	P	Fradkina (1995), Grinenko et al. (1989, 1997)
				IRC, SC	12	Yantarninskaya	LP	P	Fradkina (1995), Grinenko et al. (1989, 1997)
10	Sakan'ya272-1, Republic of Sakha, Russia	67°06'	145°20'	IRC	13	Sakan'inskaya	EP	P	Fradkina (1995), Grinenko et al. (1997)
11	Slezovka15, Republic of Sakha, Russia	67°01'	153°60'	IRC, SC	14	Iryumasskaya	LP	P	Fradkina (1995), Grinenko et al. (1997)
				IRC	15	Afonskaya	EP	P	Fradkina (1995), Grinenko et al. (1997)
12	Koluchinskaya guba, Chukotka Autonomous Region, Russia	66°60'	174°00'	IRC	16	Ukvyveemskaya	EP	P	Fradkina (1995), Grinenko et al. (1997), Kisterova et al. (1979), Volobueva et al. (1988)
13	Shamanikha, Republic of Sakha, Russia	65°70'	153°40'	IRC, SC	17	Shamanikhovskaya (upper)	EE	P	Fradkina (1995), Grinenko et al. (1989), Zharikova (1980)
				IRC, SC	18	Shamanikhovskaya (lower)	LP	P	Fradkina (1995), Grinenko et al. (1989), Zharikova (1980)
14	Medvezhye ozera, Republic of Sakha, Russia	65°50'	153°00'	IRC	19	Kopachskaya	EE	P	Fradkina (1995), Grinenko et al. (1989, 1997), Zharikova (1980)
15	Tigil', Kamtchatka Peninsular, Russia	57°98'	158°34'	IRC	20	Khulgunskaya	LP	P	Bolotnikova (1977)
16	Urkan, Amur Region, Russia	54°10'	124°39'	IRC	21	Kivdinskaya	LP	P	Sorokin & Belousov (1984)
17	Snezhnegorskoe, Amur Region, Russia	54°10'	127°60'	IRC	22	Raichikhinskaya	EE	P	Kezina & Ol'kin (2000)
18	Pikanskii, Amur Region, Russia	53°50'	127°10'	IRC	23	Verkhnetsagayanskaya	EP	P	Kezina (1997, 2005)
19	Tygda245, Amur Region, Russia	53°06'	126°20'	IRC	24	Verkhnetsagayanskaya	EP	P	Kezina (2005)

20	Ushumunskii5, Amur Region, Russia	52°50'	126°30'	IRC, SC	25	Raichikhinskaya	EE	P	Varnavskii et al. (1988)
				IRC, SC	26	Kivdinskaya	LP	P	Varnavskii et al. (1988)
21	Malomikhailovka, Khabarovsk Region, Russia	52°00'	140°00'	IRC	27	Malomikhailivskaya	EP	P, L	Akhmetiev (1973, 1993), Akhmetiev & Golovneva (1998), Akhmetiev et al. (2009), Pavlyutkin & Petrenko (2010)
22	Bukhta Siziman, Khabarovsk Region, Russia	50°40'	140°30'	IRC	28	Kizinskaya	EE	L	Ablaev et al. (2005), Akhmetiev (1973, 1988), Pavlyutkin & Petrenko (2010)
23	Erkovtsy, Amur Region, Russia	50°36'	128°30'	IRC, SC	29	Raichikhinskaya	EE	P, L	Baikovskaya (1950), Brattseva (1969), Kezina (2005)
				IRC, SC	30	Kivdinskaya	LP	P, L	Kamaeva (1990), Kezina (2005), Mamontova (1977), Naryshkina (1973), Ziva (1973)
				IRC, SC	31	Verkhnetsagayanskaya	EP	P, L	Kezina (2005), Kezina & Litvinenko (2007), Ziva (1973)
24	Darmakan, Amur Region, Russia	49°60'	129°60'	IRC	32	Verkhnetsagayanskaya	EP	L	Krassilov (1976), Zaklinskaya et al. (1977)
25	Raichikhinsk, Amur Region, Russia	49°50'	129°20'	IRC, SC	33	Raichikhinskaya	EE	P, L	Fedotov (1983), Kezina (2005)
				IRC, SC	34	Kivdinskaya	LP	P	Kezina (2005), Ziva (1973)
26	Avgustovka, Sakhalin Island, Russia	49°40'	142°10'	IRC	35	Kamenskaya (Podkonglomeratnye sloi)	EP	P, L	Ablaev (1976), Gladenkov et al. (2002), Kodrul (1999), Zaklinskaya (1976)
27	Svobodnoe53, Amur Region, Russia	49°30'	129°30'	IRC, SC	36	Raichikhinskaya	EE	P	Kezina (2005)
				IRC, SC	37	Kivdinskaya	LP	P	Kezina (2005)
				IRC, SC	38	Verkhnetsagayanskaya	EP	P	Kezina (2005)
28	Kama, Sakhalin Island, Russia	49°20'	142°06'	IRC	39	Boshnyakovskaya (Kamskie sloi)	EP	L	Akhmetiev et al. (1978), Gladenkov et al. (2002), Kodrul (1999), Sycheva (1975)
29	Snezhinka, Sakhalin Island, Russia	49°20'	142°10'	IRC, SC	40	Snezhinkinskaya (upper)	EE	P, L	Gladenkov et al. (2002), Kodrul (1999)
				IRC, SC	41	Snezhinkinskaya (middle)	LP	L	Gladenkov et al. (2002), Kodrul (1999)
				IRC, SC	42	Snezhinkinskaya (lower)	EP	P, L	Gladenkov et al. (2002), Kalishevich et al. (1981), Kodrul (1999)
30	Snezhinka, Sakhalin Island, Russia	49°20'	142°15'	IRC	43	Boshnyakovskaya (Kamskie sloi)	EP	P	Gladenkov et al. (2002), Kalishevich et al. (1981)
31	Arkharo-Boguchan, Amur Region, Russia	49°18'	130°12'	IRC	44	Verkhnetsagayanskaya	LP	L	Moiseeva et al. (2018)
32	Baishantou, Heilongjiang Province, China	49°14'	129°28'	IRC	45	Wuyun	EP	P, L	Chen et al. (2004), Hao et al. (2010), Kezina (2005), Manchester et al. (1999), Muling (1983), Tao & Xiong (1986)
33	Shakhtnyi, Sakhalin Island, Russia	48°30'	142°40'	IRC	46	Krasnoyarkovskaya (Sinegorskie sloi)	EP	P	Gladenkov et al. (2002), Zaklinskaya (1976)
34	Birofel'd, Jewish Autonomous Region, Russia	48°20'	132°50'	IRC	47	Cernorechenskaya (lower)	EE	P	Pavlyutkin & Petrenko (2010), Ziva & Lukasheva (1977)
35	Naiba, Sakhalin Island, Russia	47°50'	142°30'	IRC	48	Boshnyakovskaya (Kamskie sloi)	EP	P	Gladenkov et al. (2002), Zaklinskaya (1976)
36	Ozero Toni, Primorye Region, Russia	47°40'	138°30'	IRC	49	Kizinskaya	EE	P, L	Oleinikov and Klimova (1977), Varnavskii et al. (1988)
37	Krasnoyarka, Sakhalin Island,	47°40'	142°50'	IRC, SC	50	Naibutinskaya (upper)	EE	P, L	Gladenkov et al. (2002), Kodrul (1999)

	Russia			IRC, SC	51	Naibutinskaya (lower)	LP	L	Gladenkov et al. (2002), Kodrul (1999)
38	Alchan, Primorye Region, Russia	46°87'	134°94'	IRC	52	Uglovskaya	EE	P	Pavlyutkin & Petrenko (2010), Krasnyi (1994)
39	Bikin, Primorye Region, Russia	46°57'	135°09'	IRC	53	Unamed unite	EE	P	Pavlyutkin & Petrenko (2010), Krasnyi (1994)
40	Luchegorsk540/541, Primorye Region, Russia	46°30'	134°20'	IRC	54	Unamed unite	EE	P, L	Pavlyutkin & Petrenko (2010)
41	Kril'on,Sakhalin Island, Russia	46°30'	142°10'	IRC, SC	55	Snezhinkinskaya (upper)	EE	P	Fotjanova et al. (2001), Gladenkov et al. (2002)
				IRC, SC	56	Krasnoyarkovskaya (Sinegorskie sloi)	EP	P	Fotjanova et al. (2001), Gladenkov et al. (2002)
42	Kluch Kedrovyi, Primorye Region, Russia	46°17'	137°78'	IRC	57	Kedrovskaya	LP	P	Varnavskii et al. (1988)
43	Yilan, Heilongjiang Province, China	46°10'	129°30'	GD	58	Xin'ancun	EE	P	Quan et al. (2012a, b)
44	Kluch Stolbikova, Primorye Region, Russia	46°05'	137°50'	GD	59	Kuznetsovskaya	LP	L	Pavlyutkin & Petrenko (2010), Varnavskii et al. (1988)
45	Sobolevka, Primorye Region, Russia	46°05'	137°50'	GD	60	Takhobinskaya	EP	L	Akhmetiev (1973, 1988), Borsuk (1952)
46	Krylovskii524, Primorye Region, Russia	45°10'	133°40'	IRC	61	Uglovskaya	EE	P	Pavlyutkin & Petrenko (2010)
47	Hualin, Heilongjiang Province, China	44°80'	129°80'	PD, SC	62	Bahuli	EE	P	Quan et al. (2012a, b)
48	Shulan, Jilin Province, China	44°50'	126°90'	M, PD	63	Bangchuigou	EE	P	Fan (1985), Quan et al. (2012a)
49	Rettikhovka, Primorye Region, Russia	44°10'	132°40'	IRC	64	analog of Uglovskaya	EE	P	Pavlyutkin & Petrenko (2010)
50	Arsen'evka, Primorye Region, Russia	44°10'	133°10'	IRC	65	analog of Uglovskaya	EE	P	Bolotnikova (1988)
51	Kluch Tuyanov, Primorye Region, Russia	44°10'	135°10'	IRC	66	Tujanovskaya	EE	L	Baskakova & Lepekhina (1990), Varnavskii et al. (1988)
52	Ustinovka, Primorye Region, Russia	44°10'	135°10'	IRC, SC	67	Tadushinskaya	LP	L	Pavlyutkin & Petrenko (2010)
				IRC, SC	68	Bogopol'skaya	EP	L	Ablaev et al. (2005), Krassilov (1989)
53	Kluch Ugolnyi, Primorye Region, Russia	43°30'	134°10'	IRC	69	Uglovskaya	EE	P, L	Chekryzhov et al. (2010), Pavlyutkin & Petrenko (2010)
54	Smolyaninovo, Primorye Region, Russia	43°20'	132°30'	IRC	70	Uglovskaya	EE	P, L	Baskakova & Gromova (1979, 1984), Pavlyutkin & Petrenko (2010), Tashchi et al. (1996), Varnavskii et al. (1988), Verkhovskaya & Kundyshev (1989)
55	Tavrichanka9142, Primorye Region, Russia	43°18'	131°50'	M	71	analog of Uglovskaya	EE	P	Pavlyutkin & Petrenko (2010)
56	Fushun, Liaoning Province, China	41°80'	123°90'	GD, PD	72	Guchengzi	EE	P	Hong et al. (1980), Quan et al. (2012a)
57	Fushun, Liaoning Province, China	41°50'	123°54'	IRC	73	Guchengzi	EE	P	Wang et al. (2010)
				IRC	74	Lizigou	LP	P	Hong et al. (1980), Wang et al. (2010)
				GD, PD	75	Laohutai	EP	P	Hong et al. (1980), Wang & Wang (1982, 1985), Wang et al. (1982, 2010)

58	Etuoke, Inner Mongolia, China	39°10'	107°90'	M	76	Unamed unite 1 (lower)	EE	P	Quan et al. (2012a), Song & Zhang (1990)
59	Shache, Xinjiang Province, China	38°30'	77°30'	CN, Fo	77	Kalataer	EE	P	Quan et al. (2012a), Wang et al. (1986)
60	Huanghua, Hebei Province, China	38°30'	117°30'	GD, PD	78	Shahejie (part IV)	EE	P	Quan et al. (2012a), Zhang & Yin (2005)
61	Changle, Shandong Province, China	36°70'	118°80'	G, V	79	Wutu	EE	P	Quan et al. (2012a), Wang (2005)
62	Xining, Qinghai Province, China	36°50'	101°70'	O, PD	80	Qijiachuan (parts III, IV)	EE	P	Quan et al. (2012a), Sun et al. (1980)
63	Wutu, Shandong Province, China	36°39'	118°55'	M	81	Wutu	EE	P	Quan et al. (2012a), Zhang et al. (2016)
64	Lanzhou, Gansu Province, China	36°10'	103°80'	PD	82	Unamed unite 2 (lower)	EE	P	Ma et al. (1995), Quan et al. (2012a)
65	AS_Japan, Japan	36°00'	138°00'	IRC	83	Unamed unite	EE	L	Tanai (1972)
66	Luanchuan, Henan Province, China	33°80'	116°60'	M, R	84	Tantou (lower)	EE	P	Quan et al. (2012a), Wang et al. (1984)
67	Gaoyou, Jiangsu Province, China	32°80'	119°40'	O	85	Dianan	EE	P	Quan et al. (2012a), Zhang & Qian (1992)
68	Hefei, Anhui Province, China	31°86'	117°28'	C, D	86	Dingyuan (part III)	EE	P	Quan et al. (2012a), Wang et al. (1987)
69	Jianghan, Hubei Province, China	30°40'	112°80'	O	87	Xingouzui	EE	P	Quan et al. (2012a), Wang & Zhao (1980)
70	Qingjiang, Jiangxi Province, China	27°90'	116°10'	C, M, O	88	Qingjiang (part I)	EE	P	He & Sun (1977), Quan et al. (2012a)
71	Donghai, Zhejiang Province, China	26°40'	121°70'	Fo, CN	89	Oujiang	EE	P	Quan et al. (2012a), Zhang et al. (1990)
72	Zhujiang, Guangdong Province, China	22°60'	113°30'	GD, MA	90	Lufeng	EE	P	Li (1998), Quan et al. (2012a)
73	Changchang, Hainan Island, China	19°38'	110°27'	IRC	91	Changchang	EE	P	Yao et al. (2009)

References and complete flora lists including Nearest Living Relatives used for vegetation analysis are given in Supplementary electronic information. Sites are shown in Fig. 1. Age control in addition to plant assemblages (PA): IRC – inter-regional correlation; C – charophyte; CN – calcareous nannofossils; D – dinoflagellate; Fo – foraminifera; G – gastropods; GD – geochemical dating; M – mammals; MA – marine animals; Mo – mollusks; O – ostracods; PD – paleomagnetic dating; SC – stratigraphical correlation; R – reptiles; V – vertebrates. Age: EE – early Eocene; LP – late Paleocene; EP – early Paleocene. Fossil type: L – leaf; P – pollen and spores; C – seeds and fruits.

LITERATURE CITED

Ablaev, A.G. 1976. An excursion into the early Cenozoic history of the geological development of the West Sakhalin sedimentary basin. In: *Essays on the Geology and Paleontology of the Far East*, (A.G. Ablaev, ed.), Far Eastern Scientific Center of the Academy of Sciences of the USSR, Vladivostok, pp. 15–19. [in Russian].

Akhmetiev, M.A. 1973. Paleocene and Eocene flora of the southern Far East of the USSR and adjacent countries and their stratigraphic position. *Sovetskaya Geologiya* 7: 14–29. [in Russian].

Akhmetiev, M.A. 1988. *Cenozoic Flora of Eastern Sikhote-Alin*. Geologicheskii Institut Akademii Nauk SSSR, Moscow, 48 p. [in Russian].

Akhmetiev, M.A. 1993. *Phytostratigraphy of Paleogene and Miocene Continental Deposits of Boreal Asia*. (Transactions of the Geological Institute of the Russian Academy of Sciences 475). Nauka, Moscow, 143 p. [in Russian].

Akhmetiev, M.A. & L.B. Golovneva 1998. New data on the composition and age of the Malomikhailovskaya flora (Upper Cretaceous, Lower Amur Region). *Stratigraphy and Geological Correlation* 6(3): 43–55. [in Russian].

Akhmetiev, M.A., E.D. Zaklinskaya & V.I. Medyulyanov 1978. Paleobotanical characteristics of the Danian, Paleocene and Lower Eocene deposits of Western Sakhalin. *Sovetskaya Geologiya* 5: 77–89. [in Russian].

Akhmetiev, M., H. Walther & Z. Kvaček 2009. Mid-latitude Palaeogene floras of Eurasia bound to volcanic settings and palaeoclimatic events — experience obtained from the Far East of Russia (Sikhote-Alin) and Central Europe (Bohemian Massif). *Acta Musei Naturalis Pragae, Series B, Historia Naturalis* 65: 61–129.

Baikovskaya, T.N. 1950. Paleocene flora of the Zee-Bureya Plain. *Voprosy Paleontologii* 1: 348–381. [in Russian].

Baskakova, L.A. & N.S. Gromova 1979. Biostratigraphic dismemberment of the Uglovskii horizon according to palynological data. In: *Paleontology and Stratigraphy of the Far East*, (B.V. Poyarkov, ed.), Dal'nevostochnyi Nauchnyi Tsentr Akademii Nauk SSSR, Vladivostok, pp. 109–114. [in Russian].

Baskakova, L.A. & N.S. Gromova 1984. Stratigraphy of Smolyaninovskii coal mine in the Southern Primorye. In: *Materials on Stratigraphy and Paleogeography of East Asia (New Data)*, (A.G. Ablaev, ed.), Far Eastern Scientific Center of the AN USSR, Dal'nevostochnyi Nauchnyi Tsentr Akademii Nauk SSSR, Vladivostok, pp. 59–69. [in Russian].

Baskakova, L.A. & V.G. Lepekhina 1990. New data on the phytostratigraphy of the Paleogene of the Zerkal'nenskii Basin. In: *New Data on Stratigraphy of the Far East and the Pacific Ocean*, (A.G. Ablaev, ed.), Dal'nevostochnoe Otdelenei Rossiiskoi Akademii Nauk, Vladivostok, pp. 52–60. [in Russian].

Belaya, B.V. & I.S. Litvinenko 1988. Structure and age of Cenozoic sediments in the Khatachan–Yarovaya interfluve (Anyui depression). In: *Continental Paleogene and Neogene of the North-East of the USSR*. Issue 3. Chukotka, (V.I. Volobueva, ed.), Izdatel'stvo SVKNII DVO AN SSSR, Magadan, pp. 18–32. [in Russian].

Bolotnikova, M.D. 1977. Palynocomplex of the Khulgunskaya Formation of the Tigilsky Reference Section (Western Kamchatka). In: *Paleobotany in the Far East*, (V.A. Krassilov, ed.), Far Eastern Scientific Center of the AN USSR, Vladivostok, pp. 38–44. [in Russian].

Bolotnikova, T.N. 1988. Palynological characteristics and age of coal-bearing deposits of the Chernyshevskii Brown Coal Field (Southern Primorye). *Tikhookeanskaya Geologia* 4: 101–105. [in Russian].

Borsuk, M.O. 1952. *Fossil Flora of the Upper Cretaceous Sediments of Primorye*. Gosgeoltekhizdat, Vladivostok, 52 p. [in Russian].

Brattseva, G.M. 1969. *Palynological Studies of Upper Cretaceous and Paleogene of the Far East*. (Transactions of the Geological institute of the Academy of Sciences of the USSR 207). Nauka, Moscow, 56 p. [in Russian].

Budantsev, L.Yu. 1983. *History of the Arctic Flora of the Early Kainophytic Era*. Nauka, Leningrad, 156 p. [in Russian].

Chekryzhov, I.Yu., V.K. Popov, A.M. Panichev, V.V. Seredin & E.V. Smirnova 2010. New data on stratigraphy, volcanism, and zeolite mineralization of the Cenozoic Vanchinskii Basin, Primorsky Krai. *Tikhookeanskaya Geologia* 29(4): 45–63. [in Russian].

Chen, P.J., X.Q. Wan, J.H. Jiang, X.H. Li, L. Cao, G. Li, J.C. Liu, D.S. Yin, W. Yan & W.X. Li 2004. Searching for the stratotype of the Furao stage in Heilongjiang Province, Northeast China. *Journal of Stratigraphy* 28(2): 97–104. [in Chinese, with English abstract].

Fan, M. 1985. Spore-pollen assemblages of Paleocene Xinancun Formation in Shulan Coalfield. *Coal Technology of Northeast China* 3: 13–26. [in Chinese].

Fedotov, V.V. 1983. *Eocene Flora of Raychikha of the Amur Region*. Vols. 1 and 2. Deposited by All-Russian Institute of Scientific and Technical Information of the Russian Academy of Sciences (VINITI RAS) No. 2774-83, 287 p. [in Russian].

Fotjanova, L.I., M.Ya. Serova, V.G. Gal′versen, A.E. Zharov, N.M. Grokhotova & V.P. Tuzov 2001. The Paleogene reference section of the Kril′on Peninsula (the Kitosiya River, Southern Sakhalin). *Stratigraphy and Geological Correlation* 9(2): 58–76. [in Russian].

Fradkina, A.F. 1985. Paleogene and Neogene of the lower reaches of the Kolyma River according to palynological data. In: *Palynostratigraphy of the Mesozoic and Cenozoic of Siberia* (Transactions of Instituta Geologii i Geofiziki RAN, 620), (V.S. Volkova & A.F. Fradkina, eds.), Nauka, Novosibirsk, pp. 52–65. [in Russian].

Fradkina, A.F. & S.A. Laukhin 1984. A brief palynological characteristic of the Paleogene in the Lower Kolyma and the problem of the Eocene–Oligocene boundary in Northeast Asia. In: *Environment and Life at the Boundaries of the Cenozoic Eras in Siberia and the Far East* (Transactions of Instituta Geologii i Geofiziki, 593), (S.B. Shatskii, V.S. Volkova, I.A. Kulkova, eds.), Nauka, Novosibirsk, pp. 34–41. [in Russian].

Fradkina, A.F., G.V. Trufanov & A.S. Vakulenko 1979. Eocene deposits of New Siberian islands. In: *Continental Tertiary Deposits of North-East Asia (Stratigraphy, Correlation, Paleoclimates)*, (N.A. Schilo, Yu.P. Baranova, eds.), Nauka, Siberian Branch, Novosibirsk, pp. 22–30. [in Russian].

Grinenko, O.V. & A.F. Fradkina 1988. Palynological characteristics of the Paleogene deposits of the Northern Kharaulakh. In: *Microphytofossils and Stratigraphy of the Mesozoic and Cenozoic of Siberia* (Transactions of Institut Geologii i Geofiziki, Sibirskoe otdelenie, Akademiya Nauk SSSR, 697), (V.S. Volkova, S.B. Shatskii, eds.), Nauka, Novosibirsk, pp. 136–142. [in Russian].

Grinenko, O.V. & A.V. Kiseleva 1971. On the age of coal-bearing deposits of the Bykovskaya channel in the delta of the Lena River. In: *Palynological Characteristics of Paleozoic, Mesozoic and Cenozoic Deposits of Yakutia*, (A.I. Tomskaya, V.F. Vozin, eds.), Yakutskoe Knizhnoe Izdatel'stvo, Yakutsk, pp. 75–87. [in Russian].

Hao, H., D.K. Ferguson, G.P. Feng, A. Ablaev, Y.F. Wang & C.S. Li 2010. Early Paleocene vegetation and climate in Jiayin, NE China. *Climate Change* 99: 547–566.

He, Y.M. & X.J. Sun 1977. Palynological investigation of Palaeogene in the Qingjiang Basin in Kiangsi Province I. *Acta Botanica Sinica* 19: 72–82. [in Chinese, with English abstract].

Hong, Y.C., Z.Q. Yang, S.T. Wang, X.J. Sun, N.Q. Du, M.R. Sun & Y.G. Li 1980. *A Research on the Strata and Palaeontology of the Fushun Coal Field in Liaoning Province*. Science Press, Beijing, 54 p. [in Chinese].

Kalishevich, T.G., E.D. Zaklinskaya & M.Ya. Serova 1981. *Development of the Organic World of the Pacific Belt at the Turn of the Mesozoic and Cenozoic*. Nauka, Moscow, 164 p. [in Russian].

Kamaeva, A.M. 1990. *Stratigraphy and Flora of the Boundary Deposits of Cretaceous and Paleogene of the Zeya-Bureya Depression*. Amur Integrated Research Institute DVO AN SSSR, Khabarovsk, 65 p. [in Russian].

Kezina, T.V. 1997. Palinostratigraphy of the Maastrichtian–Danian deposits of the Pikanskii Basin (Amur region). *Tikhookeanskaya Geologia* 16: 140–142. [in Russian].

Kezina, T.V. & N.D. Litvinenko 2007. Palynostratigraphy of the Erkovtsy brown coal field (the Zeya-Bureya sedimentary basin). *Stratigraphy and Geological Correlation* 15(4): 385–400.

Kezina, T.V. & G.F. Ol'kin 2000. Palynological characteristics of Cenozoic coal-bearing deposits, the Snezhnogorskii locality in the Verkhnyaya Zeya Basin. *Stratigraphy and Geological Correlation* 8(5): 482–490.

Kisterova, I.B., V.E. Narhinova & V.E. Terekhova 1979. On the issue of identifying Paleocene sediments in the north of the Chukotka Peninsula. In: *Continental Tertiary Strata of Northeast Asia (Stratigraphy, Correlation, Paleoclimates)*, (Yu.P. Baranova, N.A. Shilo, eds.), Nauka, Novosibirsk, pp. 52–55. [in Russian].

Krasnyi, L.I. (ed.) 1994. *Decisions of the Executive Committee of the Interdepartmental Regional Stratigraphic Meeting on the Precambrian and Phaneros of the South of the Far East and Eastern Transbaikalia*. Izdatel'stvo KhGGGP, Khabarovsk, 124 p. [in Russian].

Krassilov, V.A. 1976. *Tsagayanskaya Flora of the Amur Region*. Nauka, Vladivostok, 92 p. [in Russian].

Krassilov, V.A. 1989. Change of flora on the border of Cretaceous and Paleogene in the Kavalerovskii District, Primorye. In: *Cenozoic of the Far East*, (V.A. Krassilov, R.S. Klimova, eds.), Dal'nevostochnoe Otdelenie Akademii Nauk SSSR, Vladivostok, pp. 34–37. [in Russian].

Kryshtofovich, A.N. 1958. Fossil floras of Penzhinskaya Bay, Tastakh Lake and Rarytkin Ridge. *Transactions of Botanical Institute AN SSSR, Palaoebotanica, 3*. Nauka, Moscow, Leningrad, pp. 73–124. [in Russian].

Kulkova, I.A. 1971. Eocene flora of the Yana-Indigirskaya lowland and its comparison with coeval floras of the Northern Hemisphere. In: *Cenozoic Floras of Siberia According to Palynological Data*, (V.N. Saks, V.S. Volkova, eds.), Transactions of Academy of Sciences of USSR, Siberian Branch, Vol. 135. Novosibirsk, pp. 34–37. [in Russian].

Kulkova, I.A. 1973. *Palynological Studies of the Eocene Deposits of the Yano-Indigir Lowland*. Nauka, Novosibirsk, 116 p. [in Russian].

Laukhin, S.A., M.A. Akhmetiev, A.F. Fradkina & E.V. Zyryanov 1988. Palynological characteristics of the Kungin Paleogene of North Yakutia. *Doklady Akademii Nauk SSSR* 299(3): 686–689. [in Russian].

Li, Z.X. 1998. Eocene palynology of Well LF13-2-1 in Pearl River Mouth Basin. *China Offshore Oil and Gas (Geology)* 12: 168–173. [in Chinese, with English abstract].

Liu, M.L. 1983. The late Upper Cretaceous to Paleocene spore-pollen assemblages from the Furao area, Heilongjiang Province. *Bulletin of the Sheny and Institute of Geology and Mineral Resources, Chinese Academy of Geological Sciences* 7: 99–137. [in Chinese, with English abstract].

Ma, Y., M. Tao & F. Chen 1995. The red bed sproro-pollen assemblages and geological age from Zheerzhuang of Yaojie, Gansu. *Acta Sedimentaologica Sinica* 13: 64–72. [in Chinese, with English abstract].

Mamontova, I.B. 1977. Palynology of the transitional Cretaceous–Paleogene beds in the Amur-Zea depression. In: *Paleobotany in the Far East*, (V.A. Krassilov, ed.), Far Eastern Scientific Center of the AN USSR, Vladivostok, pp. 32–37. [in Russian].

Manchester, S.R., P.R. Crane & L.B. Golovneva 1999. An extinct genus with affinities to extant Davidia and Camptotheca (Cornales) from the Paleocene of North America and Eastern Asia. *International Journal of Plant Science* 160(1): 188–207.

Moiseeva, M.G., T.M. Kodrul & A.B. Herman 2018. Early Paleocene Boguchan flora of the Amur Region (Russian Far East): Composition, age and palaeoclimatic implications. *Review of Palaeobotany and Palynology* 253: 15–36.

Naryshkina, A.V. 1973. On the boundary between the Cretaceous and Paleogene deposits in the Amur-Zeya depression. *Sovetskaya Geologiya* 6: 148–151. [in Russian].

Oleinikov, A.V. & R.S. Klimova 1977. New data on stratigraphy of Neogene volcanogenic sediments of the Samarga River basin. In: *Stratigraphy of the Cenozoic Sediments of the Far East*, (V.G. Varnavskii, ed.), Dal'nevostochnyi Nauchnyi Tsentr Akademii Nauk SSSR, Vladivostok, pp. 76–80. [in Russian].

Song, Z.C. & D.H. Zhang 1990. Geological age of the Caomuhao gypsum mine in Oto Banner, Nei Mongol with review of research on fossil proteaceous pollen in China. *Acta Palaeobotanica Sinica* 29: 257–269. [in Chinese, with English abstract].

Sorokin, A.P. & V.I. Belousov 1984. Cenozoic of the western part of the Urkanskii Basin. In: *Materials on Stratigraphy and Paleogeography of East Asia (New Data)*, (A.G. Ablaev, ed.), Far Eastern Scientific Center of the AN USSR, Vladivostok, pp. 48–52. [in Russian].

Sun, X.Y., Y.N. Zhao & Z.S. He 1980. Late Cretaceous–Early Tertiary pollen assemblages in Xining–Minhe Basin and its geological age, paleovegitational, and paleoclimatic significance. *Experimental Petroleum Geology* 2: 44–50. [in Chinese, with English abstract].

Sycheva, O.A. 1975. On the flora and age of the Kama layers of the Boshnyakovskaya Formation of the Uglegorsky District of Sakhalin Island. In: *Stratigraphy, Lithology and Paleogeography of the Meso-Cenozoic Deposits of the Far East* (Transactions of the Sakhalin Complex Research Institute Far Eastern Scientific Center of the AN USSR, Vol. 36.), (L.S. Zhidkova, ed.), Far Eastern Scientific Center of the AN USSR, Vladivostok, pp. 13–18. [in Russian].

Tanai, T. 1972. Tertiary history of vegetation in Japan. In: *Floristics and Paleofloristics of Asia and Eastern North America*, (Proceedings of Symposia for the Systematics Section, XI International Botanical Congress, Seattle, Wash. 1969, and The Japan-United States Cooperative Science Program), (A. Graham, ed.), Corvallis, Oregon 1969. Elsevier Publishing Company, Oregon, pp. 234–255.

Tao, J.R. & X.Z. Xiong 1986. The latest Cretaceous flora of Heilongjiang Province and the floristic relationship between East Asia and North America. *Acta Phytotaxonomica Sinica* 24(1): 1–15. [in Chinese, with English abstract].

Tashchi, S.M., A.G. Ablaev & N.G. Mel′nikov 1996. *Cenozoic Basin of the Western Primorye and Adjacent Territories of China and Korea*. Dal'nauka, Vladivostok, 168 p. [in Russian].

Varnavskii, V.G., A.K. Sedykh & V.I. Rybalko 1988. *Paleogene and Neogene of the Amur Region and Primorye*. Izdatel'stvo DVO AN SSSR, Vladivostok, 184 p. [in Russian].

Verkhovskaya, N.B. & A.S. Kundyshev 1989. Physiognomic features of spore-pollen spectra and their use in stratigraphy. In: *Cenozoic of the Far East*, (V.A. Krassilov, R.S. Klimova, eds.), Dal'nevostochnoe Otdelenie Akademii Nauk SSSR, Vladivostok, pp. 128–134. [in Russian].

Volobueva, V.I., Yu.B. Gladenkov & B.V. Belaya 1988. Paleogene of the North-East of the USSR. In: *Stratigraphy and Paleontology of the Phanerozoic of the North-East of the USSR*, (V.P. Pokhialainen, M.Kh. Gagiev, eds.), Izdatel'stvo SVKNII DVO AN SSSR, Magadan, pp. 118–156. [in Russian].

Wang, D.F., R.F. Gao, J.Y. Wang & Y.Q. Fan 1982. Paleomagnetic determination for lower limits of Early Cretaceous and Palaeocene systems in Liaoning. *Bulletin of the Geological Society of Liaoning Province* 1: 116–121. [in Chinese, with English abstract].

Wang, D.N. & Y.N. Zhao 1980. Late Cretaceous–Early Paleogene sporopollen assemblages of the Jianghan Basin and their stratigraphical significance. *Professional Paper of Chinese Academy of Geological Sciences (Stratigraphy and Palaeontology)* 9: 1–174. [in Chinese, with English abstract].

Wang, D.N., X.Y. Sun & Y.N. Zhao 1984. The Paleocene–Eocene palynoflora from the Tantou Basin in west Henan. *Acta Botanica Sinica* 26: 448–455. [in Chinese, with English abstract].

Wang, D.N., X.Y. Sun & Y.N. Zhao 1986. Palynoflora from Late Cretaceous to Tertiary in Qinghai and Xinjiang. *Bulletin of the Institute of Geology, Chinese Academy of Geological Sciences* 15: 152–169. [in Chinese, with English abstract].

Wang, J.Y. & D.F. Wang 1982. Age determination by K–Ar method for the bottom of the Palaeocene Laohutai Formation at Fushun district. *Bulletin of the Geological Society of Liaoning Province* 1: 110–115. [in Chinese, with English abstract].

Wang, J.Y. & D.F. Wang 1985. Age determination of basalt of Palaeocene Laohutai Formation in Fushun district by delation method of K–Ar elements. *Bulletin of the Geological Society of Liaoning Province* 1: 86–90. [in Chinese, with English abstract].

Wang, K.F., Y.L. Zhang & R. Wang 1987. *Cretaceous–Tertiary Palynological Assamblages from Anhui*. Petroleum Industry Press, Beijing, 129p.

Wang, Q., D.K. Ferguson, G.P. Feng, A.G. Ablaev, Y.F. Wang, J. Yang, Y.L. Li & C.S. Li 2010. Climatic change during the Palaeocene to Eocene based on fossil plants from Fushun, China. *Palaeogeography, Palaeoclimatology, Palaeoecology* 295: 323–331.

Wang, X.M. 2005. Eocene palynostratigraphy of Wutu, Shandong and its stratigraphical significance. *Journal of Stratigraphy* 29: 22–27. [in Chinese, with English abstract].

Williams, A., N.J. Bax, R.J. Kloser, F. Althaus, B. Barker & G. Keith 2009. Australia's deep-water reserve network: implications of false homogeneity for classifying abiotic surrogates of biodiversity. *International Council for the Exploration of the Sea Journal of Marine Science* 66: 214–224.

Wing, S.L., F. Herrera, C.A. Jaramillo, C. Gómez-Navarro, P. Wilf & C.C. Labandeira 2009. Late Paleocene fossils from the Cerrejón Formation, Colombia, are the earliest record of Neotropical rainforest. *Proceedings of the National Academy of Sciences* 106(44):18627–18632.

Yao, Y.F., S. Bera, D.K. Ferguson, V. Mosbrugger, K.N. Paudayal, J.H. Jin & C.S. Li 2009. Reconstruction of paleovegetation and paleoclimate in the early and middle Eocene, Hainan Island, China. *Climatic Change* 92: 169–189.

Zaklinskaya, E.D. 1976. Key and correlative taxa and palynological correlation of sediments bordering between the Mesozoic and Cenozoic systems in South Sakhalin. In: *Essays on the Geology and Paleontology of the Far East*, (A.G. Ablaev, ed.), Far Eastern Scientific Center of the Academy of Sciences of the USSR, Vladivostok, pp. 51–65. [in Russian].

Zaklinskaya, E.D., G.M. Brattseva & V.A. Krassilov 1977. On the palynoflora of the Tsagaian stratotype. In: *Paleobotany in the Far East*, (V.A. Krassilov, ed.), Far Eastern Scientific Center of the AN USSR, Vladivostok, pp. 28–31. [in Russian].

Zhang, Q.-Q., T. Smith, J. Yang & C.-S. Li 2016. Evidence of a cooler continental climate in East China during the warm early Cenozoic. *PLoS ONE* 11(5): e0155507.

Zhang, T. & F. Yin 2005. Sporopollen assemblage from the Shahejie Formation in the Tanhai area of Huanghua depression. *Journal of Northwest University (Natural Science Edition)* 35: 91–94. [in Chinese, with English abstract].

Zhang, Y.Y. & Z.S. Qian 1992. Eocene palynofloras from the Dainan and Sanduo formations in north Jiangsu with special reference to Eocene climatic changes in southeast China. *Acta Micropalaeontologica Sinica* 9: 1–24. [in Chinese, with English abstract].

Zhang, Y.Y., K.D. Wang, J.L. Liu & Y.H. Zheng 1990. Eocene palynoflora from the southwestern continental shelf basin of the East China Sea. *Acta Micropalaeontologica Sinica* 7: 389–402. [in Chinese, with English abstract].

Zharikova, L.P. 1980. Paleogene spore-pollen complexes of the right bank of the Kolyma River. In: *Cenozoic of Eastern Yakutia*, (V.F. Vozin, ed.), Yakut Branch of the Siberian Department of the USSR Akademy of Sciences, Yakutsk, pp. 18–35. [in Russian].

Zharikova, L.P., A.S. Kazantsev, P.S. Minyuk & A.G. Savcheshu 1982. New data on the stratigraphy of the eastern part of the Primorskaya lowland. In: *Geology of the Cenozoic of Yakutia*, (V.B. Spektor, ed.), Yakut Branch of the Siberian Department of the USSR Akademy of Sciences, Yakutsk, pp. 28–34. [in Russian].

Ziva, M.V. 1973. Palynological characteristics of the Paleogene deposits of the Amur-Zeya Depression. In: *Palynologiya Kainofita*, (Proceedings of the Third International Palynological Conference), (E.D. Zaklinskaya, ed.), Nauka, Moscow, pp. 89–93. [in Russian].

Ziva, M.V. & L.I. Lukashova 1977. Palynological characteristics of the Paleogene and Neogene deposits of the Middle Amur depression. In: *Stratigraphy of the Cenozoic Sediments of the Far East*, (V.G. Varnavskii, ed.), Dal'nevostochnyi Nauchnyi Tsentr Akademii Nauk SSSR, Vladivostok, pp. 42–47. [in Russian].