

APPENDIX 1

GPS coordinates of the way-points (WP) points, including stratigraphic data

| No. | WP               | Location      | Latitude/<br>Longitude       | High<br>m a.s.l. | Lithology                              | Species  | Age                                 |
|-----|------------------|---------------|------------------------------|------------------|--|--|-------------------------------------|
| 1   | WP 7             | Prokhladne    | 44°45'43.80"<br>33°59'33.88" | 380              | ferruginous brown siltstone<br>(TFF)   | Foraminifera: <i>Thuramminoides metensis</i> (Terquem),<br><i>Glomospira</i> sp.   | ?Middle Triassic-<br>Early Jurassic |
| 2   | WP 8             | Prokhladne    | 44°45'44.04"<br>33°59'36.70" | 368              | ferruginous brown siltstone<br>(TFF)   | Foraminifera: <i>Thuramminoides metensis</i> (Terquem),<br><i>Thalmannammina canningensis</i> Tappan   | ?Middle Triassic-<br>Early Jurassic |
| 3   | WP 10            | Prokhladne    | 44°45'44.04"<br>33°59'36.82" | 369              | ferruginous brown siltstone<br>(TFF)   | Foraminifera: <i>Thuramminoides metensis</i> (Terquem),<br><i>Trochammina</i> sp.  | ?Middle Triassic-<br>Early Jurassic |
| 4   | WP 11            | Prokhladne    | 44°45'44.70"<br>33°59'37.54" | 369              | ferruginous brown siltstone<br>(TFF)   | Foraminifera: <i>Thuramminoides metensis</i> (Terquem),<br><i>Ammodiscus</i> aff. <i>siliceus</i> (Terquem)  | ?Middle Triassic-<br>Early Jurassic |
| 5   | WP 12            | Prokhladne    | 44°45'47.10"<br>33°59'38.50" | 366              | ferruginous brown siltstone<br>(TFF)   | Foraminifera: <i>Thuramminoides metensis</i> (Terquem)   | ?Middle Triassic-<br>Early Jurassic |
| 6   | WP 13            | Trudolyubivka | 44°47'5.52"<br>34° 0'27.10"  | 312              | ferruginous brown siltstone<br>(TFF)   | Foraminifera: <i>Thuramminoides metensis</i> (Terquem)   | ?Middle Triassic-<br>Early Jurassic |
| 7   | WP 18<br>"2011"  | Vesele        | 44°51'14.94"<br>34°52'19.98" | 191              | beige micaceous mudstone               | Foraminifera: <i>Ammodiscus siliceus</i> (Terquem),<br><i>Ammobaculites</i> cf. <i>rhaeticus</i> Kristan-Tollmann, <i>Textularia</i><br>aff. <i>haeusleri</i> Kaptarenko Chernousova, ? <i>Palustrella exiqua</i><br>(Schwager), <i>Verneuilinoides</i> cf. <i>liasina</i> (Terquem and<br>Berthelin), <i>Lenticulina</i> sp.        | ?? Early Jurassic                   |
| 8   | WP 18A<br>"2013" | Vesele        | 44°51'14.94"<br>34°52'19.98" | 194              | framestone<br>thin-section 1           | Foraminifera: <i>Crescentiella morronensis</i> (Crescenti),<br><i>Quinqueloculina</i> cf. <i>podubiensis</i> Tereschuk,<br><i>Paleogaudryina</i> sp.   | Late Jurassic                       |
| 9   | WP 18A<br>"2013" | Vesele        | 44°51'14.94"<br>34°52'19.98" | 194              | bioclastic packstone<br>thin-section 2 | Foraminifera: <i>Crescentiella morronensis</i> (Crescenti),<br><i>Rumanolina turriculata</i> (Dieni and Massari) <i>Moesiloculina</i><br>sp., <i>Reophax</i> sp., <i>Ammobaculites</i> sp., <i>Spirillina</i> sp.,<br>Microproblematica: <i>Koskinobullina socialis</i> Cherchi and<br>Schroeder, Polychaeta: <i>Mercierella</i> sp. | Early Cretaceous                    |

|    |       |            |                              |     |                                       |   |  |
|----|-------|------------|------------------------------|-----|---------------------------------------|---|--|
| 10 | WP 23 | Vesele     | 44°50'42.06"<br>34°51'31.56" | 234 | beige, micaceous mudstone (TFF)       | Foraminifera: <i>Ammobaculites</i> cf. <i>rhaeticus</i> Kristan-Tollmann/ <i>Kutseleva</i> sp., <i>Trocholina</i> aff. <i>turris</i> Frentzen, <i>Gaudryinella</i> sp.  | ?Middle Triassic-<br>Early Jurassic        |
| 11 | WP 32 | Semydviria | 44°43'40.80"<br>34°27'58.67" | 231 | ferruginous dark grey siltstone (TFF) | Foraminifera: <i>Thuramminoides metensis</i> (Terquem)  | ?Middle Triassic-<br>Early Jurassic        |
| 12 | WP 34 | Semydviria | 44°43'40.02"<br>34°26'50.57" | 150 | dark grey mudstone (TFF)              | Foraminifera: <i>Thuramminoides metensis</i> (Terquem)  | ?Middle Triassic-<br>Early Jurassic        |
| 13 | WP 35 | Semydviria | 44°43'16.98"<br>34°25'38.33" | 276 | dark grey siltstone (TFF)             | Foraminifera: <i>Thuramminoides metensis</i> (Terquem), <i>Psammosphaera</i> sp.  | ?Middle Triassic-<br>Early Jurassic        |
| 14 | WP 39 | Berehove   | 44°24'30.84"<br>33°52'54.16" | 141 | dark beige mudstone (TFF)             | Foraminifera: <i>Kechenotiske</i> cf. <i>mauritiensis</i> Haig and McCartain, <i>Kechenotiske</i> cf. <i>liasica</i> (Brand), <i>Hyperammina</i> aff. <i>pediformis</i> Scherp., <i>Glomospira gordialis</i> (Jones and Parker), <i>Thalamannamina canningensis</i> Tappan, <i>Verneuilinoides</i> cf. <i>liasina</i> (Terquem and Berthelin)   | Late Triassic-<br>Early Jurassic           |
| 15 | WP 39 | Berehove   | 44°24'30.84"<br>33°52'54.16" | 141 | grainstone thin-section               | Foraminifera: <i>Crestcentiella moronensis</i> (Crescenti), <i>Troglotella incrustans</i> Wernli and Fookes   | Late Jurassic                              |
| 16 | WP 40 | Laspi      | 44°24'50.70"<br>33°43'30.63" | 170 | dark beige mudstone (TFF)             | Foraminifera: <i>Hyperammina</i> sp., <i>Psammosphaera</i> sp., <i>Glomospira</i> sp., <i>Palustrella</i> sp., <i>Thalmannamina canningensis</i> Tappan, <i>Verneuilinoides</i> cf. <i>liasina</i> (Terquem), <i>Dentalina</i> sp., <i>Astacolus</i> cf. <i>varians</i> (Bornemann)/ <i>A. suturalis-costata</i> Franke   | Late Triassic- Early<br>Jurassic           |
| 17 | WP 40 | Laspi      | 44°24'50.70"<br>33°43'30.63" | 170 | dark beige mudstone (TFF)             | Foraminifera: <i>Hyperammina</i> sp., <i>Trochammina</i> sp., <i>Palustrella piketyi</i> (Terquem)  | Late Triassic-<br>middle Early<br>Jurassic |
| 18 | WP 43 | Laspi      | 44°24'50.64"<br>33°43'35.43" | 225 | olive, radiolarian mudstone           | Foraminifera: <i>Haplophragmium</i> cf. <i>subaequale</i> Myatluk <i>Ammobaculites</i> cf. <i>suprajurassica</i> (Schwager), <i>Reophax</i> sp., <i>Textulariopsis jurassica</i> (Gümbel), <i>Paleogaudryina</i> cf. <i>magharensis</i> Said and Bakarat, <i>Lenticulina</i> sp., <i>Spirillina</i> cf. <i>andreae</i> Bielecka, <i>S. tenuissima</i> Gumbel, <i>Paalzowella</i> cf. <i>siboldi</i> Lutze, <i>Ophthalmidium</i> cf. <i>marginatum</i> (Wiśniowski), <i>O. strumosum</i> (Gümbel), <i>Spirophthalmidium</i> sp., <i>Discorbis</i> cf. <i>speciosa</i> Dain | Oxfordian                                  |

|    |        |                |                              |     |                                       |   |  |
|----|--------|----------------|------------------------------|-----|---------------------------------------|---|--|
| 19 | WP 43  | Laspi          | 44°24'50.64"<br>33°43'35.43" | 225 | microbial bindstone<br>thin-section 1 | Foraminifera: <i>Textularia</i> sp., <i>Bullopora</i> sp., <i>Nubeculariidae</i> ,<br>Polychaeta: <i>Terebella lapilloides</i> Munster  | Late Jurassic  |
| 20 | WP 43  | Laspi          | 44°24'50.64"<br>33°43'35.43" | 225 | micritic limestone<br>thin-section 2  | Foraminifera: <i>Paleogaudryina</i> sp., <i>Cornuspira<br/>eichbergensis</i> Kubler and Zwingli, <i>Nubeculariidae</i> . Calcareous<br>dinocysts: <i>Comittiosphaera czestochowiensis</i><br>Rehanek, <i>Colomisphaera fibrata</i> (Nagy)   | early-middle<br>Late Oxfordian   |
| 21 | WP 66  | Laspi          | 44°24'45.22"<br>33°43'55.34" | 446 | packstone<br>thin-section             | Foraminifera: <i>Gaudryina</i> sp., <i>Placopsilina</i> sp., <i>Troglotella<br/>incrustans</i> Wernli and Fookes, <i>Crescentiella morronensis</i><br>(Crescenti),<br>Algae: <i>Thaumatoporella parvovesiculifera</i> Rainieri,<br>Microproblematica: <i>Baccinella irregularis</i> Radoicic,<br>Porostromata | Late Jurassic/ Early<br>Cretaceous                                     |
| 22 | WP 67  | Laspi          | 44°24'58.93"<br>33°44'6.76"  | 352 | grey, micaceous siltstones            | Foraminifera: <i>Trochammina</i> sp., <i>Verneullinoides</i> sp.<br><br>calcareous nannoplanton   | ?<br>not older than<br>Tithonian                                       |
| 23 | WP 70a | Velykiy Kenion | 44°31'19.88"<br>33°59'41.56" | 630 | wackestone<br><br>thin-section        | Foraminifera: " <i>Vidalina martana</i> " Farinacci,<br><i>Involutina</i> cf. <i>liasica</i> (Jones)<br><br><i>Pseudomarssonella osoviensis</i> (Bielecka and Styk),<br><i>Siphovalvulina variabilis</i> , Septfontaine, <i>Quinqueloculina</i> cf.<br><i>occulta</i> Antonova                                | Lias<br>Middle<br><br>Jurassic   |
| 24 | WP 71  | Sokolyne       | 44°30'52.74"<br>33°59'17.12" | 540 | calcareous mudstone                   | Foraminifera: <i>Haplophragmium</i> sp., <i>Alveosepta</i> sp.,<br><i>Textulariopsis jurassica</i> (Gümbel), <i>Lenticulina</i> sp.,<br><i>Anchispirocyclina lusitanica</i> (Egger)<br><br>calcareous nannoplanton  | Late Jurassic<br>(Oxfordian)<br><br>Late Jurassic/<br>Early Cretaceous |
| 25 | WP 74  | Sokolyne       | 44°29'26.84"<br>33°59'40.02" | 971 | calcareous mudstone                   | Foraminifera: <i>Haplophragmium</i> cf. <i>subaequale</i> (Myatliuk),<br><i>?Rectocyclammina</i> sp., <i>Lenticulina</i> sp., <i>?Belorusiella</i> sp.,<br><i>Spirulina</i> sp.<br>calcareous nannoplanton  | Jurassic<br><br>at least Tithonian                                     |

|    |       |               |                              |     |                              |   |  |
|----|-------|---------------|------------------------------|-----|------------------------------|---|--|
| 26 | WP 74 | Sokolyne      | 44°29'26.84"<br>33°59'40.02" | 971 | mudstone                     | Foraminifera: Textulariidae, <i>Quinqueloculina</i> aff. <i>podlubensis</i> Tereschuk, <i>Spirulina</i> sp.   | Late Jurassic-<br>?Early Cretaceous    |
| 27 | WP 80 | Vynohradne    | 44°29'8.92"<br>34° 5'28.54"  | 538 | beige siltstone              | Foraminifera: ? <i>Everticyclammina</i> sp., <i>Verneuilina</i> sp., <i>Epistomina</i> sp.<br>calcareous nannoplankton  | Early Cretaceous?<br>at least Bajocian |
| 28 | WP 81 | Vynohradne    | 34° 5'28.54"<br>34° 6'5.47"  | 360 | ferruginous mudstone         | Foraminifera: <i>Alveosepta</i> sp., <i>Epistomina</i> sp.,   | Early Cretaceous?                      |
| 29 | WP 83 | Masandra      | 44°30'52.06"<br>34°10'11.35" | 74  | marly mudstone               | Foraminifera: <i>Astacolus</i> aff. <i>volubilis</i> Dain   | ?Middle Jurassic                       |
| 30 | WP 88 | Chatyrdag     | 44°46'55.52"<br>34°16'25.36" | 999 | wackstone<br>thin-section    | Foraminifera: <i>Glomospira</i> sp., <i>Haplophragmium</i> sp., <i>Valvulina</i> sp., <i>Andersenolina alpina</i> (Leupold), <i>A. histeri</i> Neagu, <i>Nautiloculina</i> cf. <i>bronnimanni</i> , Arnaud-Vanneau and Peybernes, <i>Anchispirocyclina lusitanica</i> (Egger), <i>Scythiloculina confusa</i> Neagu, <i>Feurtilia frequens</i> Mayne, Algae: <i>Clypeina</i> sp., Calcareous dinocysts: <i>Crustocadosina semiradiata</i> (Wanner), Microproblematica: <i>Bacinella irregularis</i> Radoicic, Porostromata | Tithonian-Berriasian                   |
| 31 | WP 96 | Ovrazhky      | 44°57'57.96"<br>34°24'58.79" | 393 | wackstone<br>thin-section    | Foraminifera: <i>Andersenolina alpina</i> (Leupold), <i>A. elongata</i> (Leupold), Algae: <i>Clypeina</i> sp., <i>Terquimella</i> sp., <i>Globochaete alpina</i> Lombard, Microproblematica: <i>Thaumatoporella parvovesiculoifera</i> Rainieri   | Tithonian                              |
| 32 | WP 99 | Krasnoselivka | 44°55'23.02"<br>34°38'4.20"  | 908 | beige marly mudstone         | Foraminifera: <i>Protomarssonella kummi</i> (Zedler), <i>P. ex gr. ouachensis</i> (Sigal), <i>P. hechti</i> (Dieni and Massari), <i>Verneuilina</i> sp., <i>Paleogaudryina ichnusella</i> cf. <i>burlini</i> (Gorbachik), <i>Trocholina</i> cf. <i>molesta</i> Gorbachik, <i>Epistomina</i> sp., <i>Dentalina</i> sp.   | Tithonian-Berriasian                   |
| 33 | WP 99 | Krasnoselivka | 44°55'23.02"<br>34°38'4.20"  | 908 | floatstone<br>thin-section 1 | Foraminifera: <i>Paleogaudryina</i> sp., <i>Haplophragmium</i> sp., <i>Andersenolina alpina</i> (Leupold), <i>Sievoides kocygiti</i> Farinaci and Ekmeci, <i>Crescientella moronensis</i> (Cresceti), <i>Nautiloculina bronnimani</i> Arnaud-Vanneau and Peybernes, Calpionellids: <i>Calpionella alpina</i> Lorenz, Polychaeta: <i>Terebella lapilloides</i> Munster   | Tithonian-Berriasian                   |
| 34 | WP 99 | Krasnoselivka | 44°55'23.02"<br>34°38'4.20"  | 908 | floatstone<br>smear slide    | calcareous nannoplankton  | Barremian                              |

|    |        |               |                              |     |                               |   |                                   |
|----|--------|---------------|------------------------------|-----|-------------------------------|---|-----------------------------------|
| 35 | WP 100 | Krasnoselivka | 44°54'19.33"<br>34°38'40.88" | 914 | floatstone<br>smear slide     | calcareous nannoplankton  | Late Jurassic-Early<br>Cretaceous |
| 36 | WP 101 | Krasnoselivka | 44°53'51.50"<br>34°40'1.70"  | 926 | grey mudstone<br>thin-section | Foraminifera: <i>Glomospira</i> sp., <i>Heterohelix</i> sp.,<br><i>Hedbergella</i> sp.  | Early Cretaceous?                 |
| 37 | WP 101 | Krasnoselivka | 44°53'51.50"<br>34°40'1.70"  | 926 | grey mudstone                 | calcareous nannoplankton  | Early Cretaceous                  |
| 38 | WP 102 | Krasnoselivka | 44°53'35.66"<br>34°40'45.41" | 947 | grainstone<br>thin-section    | Foraminifera: <i>Sievoides kocyigiti</i> Farinaci and Ekmeci,<br><i>Everticyclammina</i> sp., <i>Verneulina</i> sp., <i>Crescentiella</i><br><i>morronensis</i> (Crescenti)   | not older than<br>Kimmeridgian    |
| 39 | WP 102 | Krasnoselivka | 44°53'35.66"<br>34°40'45.41" | 947 | grainstone<br>smear slide     | calcareous nannoplankton  | Tithonian/Lower<br>Cretaceous     |
| 40 | WP 119 | Perevalivka   | 44°57'55.66"<br>34°57'48.71" | 0   | grainstone<br>smear slide     | calcareous nannoplankton  | Tithonian/Lower<br>Cretaceous     |
| 41 | WP 101 | Chatyrdag     | 44°46'49.26"<br>34°16'10.08" | 926 | grey mudstone                 | Foraminifera: <i>Glomospira</i> sp., <i>Heterohelix</i> sp.,<br><i>Hedbergella</i> sp.  | not older than<br>Albian          |
| 42 | WP 107 | Lavanda       | 44°44'55.86"<br>34°21'3.06"  | 676 | light grey, marly mudstone    | Foraminifera: <i>Haplophragmium aequale</i> (Roemer),<br><i>Textulariopsis bettenstaedti</i> (Bartenstein and Oertli),<br><i>Gaudryinoides</i> ? sp., <i>Pseudocyclammina</i> sp.,<br><i>Ammobaculites</i> sp., <i>Stomatostoecha condensa</i> (Dulub),<br><i>Melathrokerion spirialis</i> Gorbachik, <i>Verneulinoides</i> cf.<br><i>subminutus</i> (Gorbachik), <i>Protomarssonella hechti</i> (Dieni<br>and Massari), <i>Patellina</i> cf. <i>subcretacea</i> Cushman,<br><i>Lenticulina muensteri</i> (Roemer), <i>Lenticulina</i> cf. <i>subgaultina</i><br>Bartenstein, <i>Pseudosiphoninella antiqua</i> (Gorbachik),<br><i>Discorbis</i> sp., <i>Trocholina</i> sp., <i>Ophthalmidium</i> sp. | Early Cretaceous<br>(Neocomian)   |
| 43 | WP 115 | Novyi Svit    | 44°49'58.44"<br>34°55'39.24" | 54  | light grey, marly mudstone    | Foraminifera: <i>Protomarssonella hechti</i> (Dieni and Massari),<br><i>Verneulinoides</i> cf. <i>subminutus</i> (Gorbachik),<br><i>Ammobaculites</i> sp., <i>Ammodiscus</i> sp., <i>Trochammina</i> sp.,<br><i>Epistomina reticulata</i> (Reuss), <i>Lenticulina collignoni</i><br>Espitalié and Sigal, <i>Rumanolina feifeli</i> (Paalzow)  | Early Cretaceous<br>(Neocomian)   |

|    |        |                 |                              |     |   |   |                                    |
|----|--------|-----------------|------------------------------|-----|---|---|------------------------------------|
| 44 | WP 125 | Krasnoselivka   | 44°52'43.68"<br>34°41'13.68" | 359 | thin-section<br>block of limestone (conglomerate) | Foraminifera: <i>Troglotella incrustans</i> Wernli and Fookes, sponges, microproblematica: <i>Koskinobullina socialis</i> Cherchi and Schroeder   | ? not older than Kimmeridgian      |
| 45 | WP 149 | Krasnoselivka   | 44°54'30.72"<br>34°58'6.96"  | 473 | beige mudstone                                    | Foraminifera: <i>Rhizammina</i> sp., <i>Ammobaculites</i> sp., <i>Trochammina</i> ex gr <i>vocontiana</i> (Moullade), <i>Verneuiliinoides</i> cf. <i>neocomiensis</i> (Myatluk), <i>Lenticulina</i> sp., <i>Dentalina</i> sp.   | Early Cretaceous                   |
| 46 | WP 149 | Krasnoselivka   | 44°54'30.72"<br>34°58'6.96"  | 473 | rudstone<br>thin-section 1                        | Foraminifera: <i>Pseudocyclammina lituus</i> (Yokoyama), <i>Crescientella morronensis</i> Crescenti, <i>Protopenneroplis</i> sp., <i>Rumanoloculina mitchurini</i> (Dain), <i>Mohlerina basiliensis</i> (Mohler); Calpionellids: <i>Calpionella alpina</i> Lorenz, C. cf. <i>eliptica</i> Cadish  | ?Berriasian                        |
| 47 | WP 149 | Krasnoselivka   | 44°54'30.72"<br>34°58'6.96"  | 473 | grainstone<br>thin-section 2                      | Foraminifera: <i>Pseudocyclammina lituus</i> (Yokoyama), <i>Verneuiliina</i> sp., <i>Nautiloculina bronnmanni</i> Arnaus-Vannea and Pyebernes, <i>Mohlerina basiliensis</i> (Mohler), <i>Protopenneroplis</i> sp., Polychaeta: <i>Carpathiella</i> sp.  | ?Berriasian                        |
| 48 | WP 151 | Krasnoselivka   | 44°54'46.74"<br>34°38'2.34"  | 474 | rudstone<br>thin-section 1                        | Foraminifera: <i>Pseudocyclammina lituus</i> (Yokoyama), <i>Texturalia</i> cf. <i>notha</i> Gorbachik, <i>Verneuiliinoides</i> sp., <i>Protopenneroplis</i> sp., <i>Nauticulina oolithica</i> (Mohler), Polychaeta: <i>Carpathiella</i> sp.   | Tithonian                          |
| 49 | WP 151 | Krasnoselivka   | 44°54'46.74"<br>34°38'2.34"  | 474 | rudstone<br>thin-section 2                        | Foraminifera: <i>Texturalia</i> cf. <i>notha</i> Gorbachik, <i>Kastamonina abanica</i> Sirel, <i>Quinqueloculina verbizhiensis</i> Dulub, <i>Lithocodium aggregatum</i> Elliot, <i>Haplophragmium</i> sp., <i>Nubecularia</i> sp., <i>Andersenolina alpina</i> (Leupold), <i>Protopenneroplis</i> sp., Polychaeta: <i>Terebella lapilloides</i> (Munster) | Tithonian                          |
| 50 | WP 153 | Sudak           | 44°48'58.02"<br>35°3'1.28"   | 0   | sandy mudstone                                    | Foraminifera: <i>Hyperammina</i> sp., <i>Glomospira</i> sp., <i>Textulariopsis jurassica</i> (Gümbel)/ <i>bettenstaedti</i> , <i>Trochammina</i> sp., <i>Dentalina</i> cf. <i>pseudocommunis</i> Franke, <i>Lenticulina muensteri</i> (Roemer), <i>Epistomina</i> sp., <i>Discorbis</i> sp.   | Late Jurassic-<br>Early Cretaceous |
| 51 | WP 158 | Sonechna Dolyna | 44°54'22.32"<br>35°6'6.00"   | 339 | bioclastic grainstone<br>thin-section             | Foraminifera: <i>Crescientella morronensis</i> sp., <i>Evertcyclammina</i> sp., <i>Quinqueloculina</i> sp.  | Late Jurassic-<br>Early Cretaceous |