**ESM Table S1** *Alnus* decline – pollen sites; Site category: A – primary sites, B – secondary sites; Decline: a– present, b– no recovery, c– weak or not recorded; Age of the event (median): start of the decline, minimum value, recovery to the earlier level; EPD – European Pollen Database.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site No. | Site Name | Geogr. coordinates | Site cat. | Decline | | | Decline  from-to (%) | Dating  method | Age of the event  (AD) | Comment | Source of data |
| a | b | c |
| 1 | Lake Racze/  Wolin Island | 53o55’N 14o40’E | A | x |  |  | 18.5-8.4  (54.6%) | 14C dates | 800  900  1100 |  | Latałowa M (1992) |
| 2 | Kołczewo | 53o55’N 14o40’E | A | x | x |  | 26.7-9.7  (63.7%) | 14C dates | 9th c. | Lack of the top of the profile | Latałowa M (1992) |
| 3 | Wolin II/00 | 53 o50’N 14 o37’E | A | x |  |  | 10.7-2.1  (80%) | 14C dates | 10th c. |  | Pędziszewska A (unpubl.) |
| 4 | Lake Racze/Miedwie | 53o18’N 14o51’E | A | x |  |  | 20.2-10.8  (46.5%) | 14C dates | 800  975  1070 |  | Bloom K (2015) |
| 5 | Lake Zarańskie | 53o34’N 15o49’E | B | x |  |  | 20.4-10.6  (48%) | Pollen stratigraphy | ca. 9-10th c. |  | Noryśkiewicz AM (2014) |
| 6 | Lake Gągnowo | 53o37’N 15o48’E | A | x |  |  | 21-9.3  (56%) | 14C dates | 10th c. |  | Noryśkiewicz AM (unpubl.) |
| 7 | Bagno Kusowo | 53o48’N 16o35’E | A | x |  |  | ca. 13-<5  (61.5%) | 14C dates | 900  950  1100 |  | Lamentowicz M et al. (2015) |
| 8 | Lake Kwiecko | 54o01’N 16o42’E | B | x |  |  | ca. 30-5  (83.3%) | Pollen stratigraphy | 9-10th c. |  | Madeja J (2012) |
| 9 | Słowińskie Błota/85 | 54o25’N 16o30’E | A | x |  |  | 24.2-4.9  (79.8%) | 14C dates | 860  960  1170 |  | Latałowa M (unpubl.) |
| 10 | Kluki | 54o42’N 17o17’E | A | x |  |  | 20.6-3.7  (82%) | 14C dates | 9-10th c. |  | Tobolski K (1987); EPD |
| 11 | Darżlubie Forest | 54o42’N 18o10’E | A | x | x |  | 10.8-4.2  (61.1%) | 14C dates | 10th c. | Lack of the top of the profile | Latałowa M (1982) |
| 12 | Gołębiewo/GI | 54o27’N 18o30’E | A | x |  |  | 11.2-3.2  (71.43%) | 14C dates | 1040 |  | Pędziszewska A and Latałowa M (2016) |
| Site No. | Site Name | Geogr. coordinates | Site cat. | Decline | | | Decline  from-to (%) | Dating  method | Age of the event  (AD) | Comment | Source of data |
| 13 | Gdańsk-Pszenna  Granary Island | 54o20’N 18o 39’E | A | x |  |  | 44.1-2.2  (95%) | 14C dates | 880  940  1200 | A hiatus around the decline | Święta-Musznicka J and Latałowa M (2016) |
| 14 | Gdańsk-Żytnia  Granary Island | 54o20’N 18o 39’E | A | x |  |  | 49.5-3.7  (92.5%) | 14C dates | 9-10th c. |  | Święta-Musznicka J and Latałowa M (2016) |
| 15 | Lake Godziszewskie | 54o5’N 18o33’E | B | x |  |  | 30.1-3.8  (87.4%) | Pollen stratigraphy | ca. 9-10th c. |  | Miotk G (1986); EPD |
| 16 | Stążki/2013 | 54o25’N 18o05’E | B | x |  |  | ca. 15-2  (87%) | Age/depth model | ca. 10th c. |  | Gałka M et al. (2013) |
| 16a | Stążki/2008 | 54o25’N 18o05’E | A | x |  |  | ca. 10-3  (ca. 70%) | 14C dates | 10th c. |  | Lamentowicz M et al. (2008a) |
| 17 | Bukrzyno/BI | 54o14’N 18o01’E | A | x |  |  | 10.3-2.4  (76,7%) | 14C dates | 890  1000  1040 |  | Pędziszewska A (2008) |
| 18 | Lake Suminko | 54o11’N 17o47’E | A | x |  |  | 11.1-4  (64%) | 14C dates | 860  940  1060 |  | Pędziszewska A et al. (2015) |
| 19 | Lake Czechowskie | 53o52’N 18o14’E | A | x |  |  | 14.5-1.8  (88%) | 14C dates  varves | 969  1024  1135 |  | this paper |
| 20 | Lake Wielkie Gacno | 53o47’N 17o30’E | B |  |  | x | - | Age/depth model | - | The event unclear | Hjelmroos-Ericksson M (1981) |
| 21 | Lake Ostrowite | 53o47’N 17o35’E | B |  |  | x | - | Age/depth model | - | The event unclear | Milecka K (2005) |
| 22 | Lake Suszek | 53o43’N 17o46’E | B | x |  |  | ca. 22-12  (45.5%) | Pollen stratigraphy | ca. 9-10th c. |  | Miotk-Szpiganowicz G (1992) |
| 23 | Tuchola | 53o34’N 17o54’E | B | x |  |  | ca.8-2  (75%) | Pollen stratigraphy | 9-10th c. | “One sample event” | Lamentowicz M et al. (2008b) |
| 24 | Lake Kęsowo | 53o33’N 17o43’E | B | x |  |  | ca. 20-11  (45%) | Pollen stratigraphy | 9-10th c. |  | Miotk-Szpiganowicz G (1992) |
| 25 | Lake Jelonek | 53o45’N 18o23’E | B | x |  |  | ca. 10-3  (70%) | Pollen stratigraphy | ca. 9th c. |  | Filbrandt-Czaja A (2009) |
| Site No. | Site Name | Geogr. coordinates | Site cat. | Decline | | | Decline  from-to (%) | Dating  method | Age of the event  (AD) | Comment | Source of data |
| 26 | Zawada | 53o37’N 18o35’E | B | x |  |  | 17.8-11,4  (36%) | Pollen stratigraphy | ca. 9-10th c. | A hiatus around the decline | Noryśkiewicz B (2004) |
| 27 | Lake Mukrz I | 53o31’N 18o07’E | B | x |  |  | 19.6-10.2  (48%) | Pollen stratigraphy | ca. 9-10th c. |  | Noryśkiewicz AM (2006) |
| 28 | Gruczno | 53o22’N 18o19’E | B | x |  |  | 19-3.7  (80.5%) | Pollen stratigraphy | ca. 9th c. |  | Noryśkiewicz AM (2016) |
| 29 | Lake Czyste | 53o17’N 18o29’E | A | x |  |  | 12.9-4,8  (62.8%) | 14C dates | 770  820  850 |  | Noryśkiewicz AM (2013) |
| 30 | Lake Mełno | 53o26’N 19o00’E | B | x |  |  | 20.5-5,2  (74.1%) | Pollen stratigraphy | 9-10th c. |  | Noryśkiewicz AM (2013) |
| 31 | Linje | 53o11’N 18o18’E | B | x | x |  | 17.9-4  (77.7%) | Pollen stratigraphy | 10th c. |  | Noryśkiewicz AM (2013) |
| 31a | Linje | 53o11’N 18o18’E | A | x |  |  | ca. 16-8  ( 50%) | 14C dates | 9-10th c. |  | Marcisz K et al. (2015) |
| 32 | Lake Kamionkowskie | 53o08’N 18o46’E | B | x |  |  | 14.7-5,5  (62.6%) | Pollen stratigraphy | ca. 10th c. |  | Noryśkiewicz AM (2013) |
| 33 | Gronowo | 53o06’N 18o48’E | A | x |  |  | 15.5-3,6  (76.8%) | 14C dates | 880  990  1210 |  | Noryśkiewicz AM (2013) |
| 34 | Lake Strażym | 53o20’N 19o27’E | B | x |  |  | 19.2-4,5  (76.6%) | Pollen stratigraphy | ca. 9-10th c. |  | Noryśkiewicz B (1987); EPD |
| 35 | Lake Zwiniarz | 53 o26’N 19o 50’E | B | x |  |  | 19.3-5,6  (71%) | Pollen stratigraphy | ca. 9-10th c. | “One sample event” | NoryśkiewiczA(unpubl.) |
| 36 | Gązwa | 53o52’N 21o13’E | A | x |  |  | ca. 15-3  (80%) | 14C dates | ca. 8th c. | „One sample event” | Gałka M et al. (2015) |
| 37 | Lake Salęt | 53o56’N 21o19’E | B | x |  |  | - | 14C dates | - | - | Szal M et al. (2014) |
| 38 | Lake Mikołajki | 53o46’N 21o35’E | B |  |  | x | - | Pollen stratigraphy | - | Slight decline difficult to date | Ralska-Jasiewiczowa M (1966); EPD |
| Site No. | Site Name | Geogr. coordinates | Site cat. | Decline | | | Decline  from-to (%) | Dating  method | Age of the event  (AD) | Comment | Source of data |
| 39 | Lake Wojnowo | 53o57’N 21o49’E | B | x |  |  | - | Age/depth model | ca. 5th c. | Problem with dating? | Wacnik A et al. (2014) |
| 40 | Lake Miłkowskie | 53o51’N 21o50’E | B |  |  | x | - | Age/depth model | - | The event unclear | Wacnik A et al. (2014) |
| 41 | Lake Łazduny | 53o51’N 21o57’E | B | x |  |  | ca. 15-3  (80%) | 14C dates | ca. 890 | Short, distinct decline | Wacnik A et al. (2012) |
| 42 | Lake Żabińskie | 54o07’N 21o58’E | A | x | x |  | ca. 11-2  (82%) | 14C dates  varves | 870  920  1090 |  | Żarczyński M et al. (2019) |
| 43 | Mechacz Wielki (MW/I) | 54o18’N 22o18’E | A | x |  |  | ca. 12-3  (75%) | 14C dates | 10th c. |  | Gałka M et al. (2017) |
| 44 | Lake Szurpiły | 54o13’N 22o53’E | A | x |  |  | ca. 12-5  (58%) | Age/depth model, varves | 830  930  1010 |  | Kinder M et al. (2013); Kupryjanowicz M and Fiłoc M (2016) |
| 45 | Lake Wigry | 54o01’N 23o04’E | B |  |  | x | - | Age/depth model | - | decline difficult to date | Kupryjanowicz M (2007) |
| 46 | Kładkowe Bagno | 53o18’N 23o22’E | B |  |  | x | - | Pollen stratigraphy | - | Several small episodes difficult to date | Kupryjanowicz M (2004) |
| 47 | Maliniak | 53o11’N 23o19’E | B | x |  |  | 6.2-3.7  (40.3%) | Age/depth model | - | The decline weakly expressed | Kupryjanowicz M and Szal M (2015) |
| 48 | BIA/318C,  Białowieża Forest | 52°44’40.8’’N 23°53’40.4’’E | A | x |  |  | 13.1-2.1  (84%) | 14C dates | 10th c. |  | Zimny M (2014) |
| 49 | BIA/314D,  Białowieża Forest | 52°44’45.7’’N  23°50’09.5’’E | A | x |  |  | 16-4.9  (69.4%) | 14C dates | 10th c. |  | Zimny M (2014) |
| 50 | BIA/340G,  Białowieża Forest | 52°44’11.2’’N 23°50’13.0’’E | A | x |  |  | 8.9-0.7  (92.1%) | 14C dates | 10th c. |  | Zimny M (2014);  Latałowa M et al. (2015) |
| 51 | BIA/317C,  Białowieża Forest | 52°44’33.2’’N 23°52’37.1’’E | A | x |  |  | 11.8-4.3  (63.6%) | 14C dates | 10th c. |  | Zimny M (2014) |
| Site No. | Site Name | Geogr. coordinates | Site cat. | Decline | | | Decline  from-to (%) | Dating  method | Age of the event  (AD) | Comment | Source of data |
| 52 | BIA/131C, Białowieża Forest | 52°47’59.5’’N 23°50’51.3’’E | A | x |  |  | 18.2-10.1  (44.5%) | 14C dates | 10th c. |  | Zimny M (2014); Latałowa M et al. (2015, 2016) |
| 53 | BIA/161 A, Białowieża Forest | 52°47’55.0’’N 23°50’48.7’’E | A | x |  |  | - | 14C dates | 10th c. | The decline unclear; sediment disturbances | Pędziszewska A (unpubl.) |
| 54 | Czerlon | 52°41’17.8’’N 23°44’09.2’’E | A | x |  |  | 12.8-1.4  (89.1%) | 14C dates | 10th c. |  | Latałowa M et al. (2016) |
| 55 | Lake Błędowo | 52o32’N 20o40’E | B | x |  |  | 14.1-7.5  (46.8%) | Pollen stratigraphy | ca. 9-10th c. |  | Bińka K et al. (1991); EPD |
| 56 | Lake Gościąż | 52o35’N 19o21’E | B | x |  |  | 18.8-11.8  (37.2%) | 14C dates | ca. 9-10th c. | Weak data in the section of the *Alnus* decline | Ralska-Jasiewiczowa M et al. (1998); EPD |
| 57 | Lake Białe | 52o29’N 19o31’E | B | x |  |  | - | Age/depth model | ca. 10th c. | Weak data in the section of the *Alnus* decline | Wacnik A et al. (2011) |
| 58 | Lake Steklin | 52o57’N 19o01’E | B |  |  | x | - | Pollen stratigraphy | - | The event unclear | Noryśkiewicz B (1982); EPD |
| 59 | Lake Gopło | 52o38’N 18o21’E | B | x |  |  | 12.5-4.7  (62.4%) | Pollen stratigraphy | ca. 9-10th c. |  | Jankowska B (1980) |
| 60 | Lake Kamionek | 52o35’N 17o23’E | B | x |  |  | ca. 22-10  (50.5%) | Pollen stratigraphy | ca. 9-10th |  | Filbrandt-Czaja A (1998) |
| 61 | Lake Skrzetuszewskie | 52o33’N17o21’E | B |  |  | x | - | 14C dates | - | The event unclear | Tobolski K (1991); EPD |
| 62 | Lake Lednica  I/86 | 52o33’N 17o23’E | B | x |  |  | 17.02-7.6  (58.3%) | Pollen stratigraphy | ca. 9-10th c. |  | Makohonienko M (1991); EPD |
| 63 | Lake Głęboczek | 52o 39’N 17o38’E | B | x |  |  | ca. 19-7  (63%) | Pollen stratigraphy | ca. 9-10th c. |  | Makohonienko M (2000) |
| 64 | Lake Świętokrzyskie | 52o32’N 17o35’E | B | x |  |  | 21.5-6.1  (71.6%) | Pollen stratigraphy | ca. 9-10th c. |  | Makohonienko M (2000); EPD |
| Site No. | Site Name | Geogr. coordinates | Site cat. | Decline | | | Decline  from-to (%) | Dating  method | Age of the event  (AD) | Comment | Source of data |
| 65 | Lake Baba | 52o25’N 17o22’E | B |  |  | x | - | Pollen stratigraphy | - | The event unclear | Milecka K (1998) |
| 66 | Giecz 4/90 | 52o19’N 17o21’E | B | x | x |  | ca. 28-12  (57.1%) | Pollen stratigraphy | ca. 9-10th c. |  | Milecka K (1998) |
| 67 | Lake Wonieść | 51o59’N 16o42’E | A | x |  |  | ca. 16-5  (68.8%) | Age/depth model | ca. 9th c. |  | Dörfler W (2011) |
| 68 | Lake Paklicko Wielkie | 52 o19’N 15o30’E | B | x |  |  | 13.8-4.3  (69%) | 14C dates | 10th c. |  | Noryśkiewicz AM (unpubl.) |
| 69 | Lake Długie | 52 o28’N 15 o26’E | B | x |  |  | 18.8-4.1  (78%) | Pollen stratigraphy | 10th c. |  | Noryśkiewicz AM (unpubl.) |

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