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A New Flora List of the Ikawa Forest, Agricultural and Forestry Research Center, University of Tsukuba: Ferns and fern allies

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Introduction

A revised version of the flora list of the Ikawa Forest was published in 2011 (Seino *et al*., 2011) for comparison and to complement those from previous studies (University Forests of Tokyo University of Education, 1966; Takinami *et al*., 2001). In a previous study (Seino *et al*., 2011), a list of Gymnospermae and Angiospermae of the Ikawa Forest was reported. In this study, the aim was to develop a comprehensive list of ferns and fern allies of the Ikawa Forest.

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Methods

The study area was in the Ikawa Forest (35° 20' N, 138° 13' E), approximately 1,700ha, at altitude ranging from approximately 910 to 2,400 m above sea level. Field surveys and storage of the voucher specimens were performed in the same manner as that described in a previous study (Seino *et al*., 2011). Families were arranged according to Smith *et al*. (2006). The arrangement of species within a family was alphabetical. Nomenclature followed the YList (Yonekura and Kajita, 2003-, http://bean.bio.chiba-u.jp/bgplants/ylist_main.html).

Results and Discussion

The first survey (University Forest of Tokyo University of Education, 1966) confirmed a total of 25 species belonging to 16 genera in 11 families. A supplemental list by Takinami *et al*. (2001) added 1 species (*Equisetum arvense* L. of Equisetaceae). A total of 41 species belonging to 19 genera in 12 families were identified (Table 1). This study resulted in the addition of 15 species to previous lists. No endangered and alien species were found in this study. The species diversity observed in the Ikawa Forest was comparable to that of the previous study in central Japan (Sato *et al*., 2001). Our results also indicated a rich abundance of Dryopteridaceae in accordance with previous findings by Sato *et al*. (2001).

Table 1. List of the species.

Family		Species name	Japanese name (和名)	References*
Lycopodiaceae	ヒカゲノカズラ科	*Lycopodium clavatum* L.	ヒカゲノカズラ	1
		Lycopodium complanatum L.	アスヒカズラ	1
		Lycopodium dendroideum Michx.	マンネンスギ	1
Selaginellaceae	イワヒバ科	*Selaginella tamariscina* (P.Beauv.) Spring	イワヒバ	1, 3
Equisetaceae	トクサ科	*Equisetum arvense* L.	スギナ	2, 3
Hymenophyllaceae	コケシノブ科	*Hymenophyllum barbatum* (Bosch) Baker	コウヤコケシノブ	1
Adiantaceae	ホウライシダ科	*Adiantum monochlamys* D.C.Eaton	ハコネシダ	1, 3
		Adiantum pedatum L.	クジャクシダ	1, 3
		Cheilanthes argentea (S.G.Gmel.) Kunze	ヒメウラジロ	3
		Coniogramme intermedia Hieron.	イワガネゼンマイ	3
Dennstaedtiaceae	コバノイシカグマ科	*Dennstaedtia scabra* (Wall. ex Hook.) T.Moore	コバノイシカグマ	3
		Dennstaedtia wilfordii (T.Moore) H.Christ ex C.Chr.	オウレンシダ	1, 3

Aspleniaceae	チャセンシダ科	*Asplenium tenuicaule* Hayata	イワトラノオ	1
Woodsiaceae	イワデンダ科	*Athyrium deltoidofrons* Makino	サトメシダ	3
		Athyrium niponicum (Mett.) Hance	イヌワラビ	1, 3
		Athyrium pinetorum Tagawa	タカネサトメシダ	3
		Athyrium yokoscense (Franch. et Sav.) H.Christ	ヘビノネゴザ	1, 3
		Deparia japonica (Thunb.) M.Kato	シケシダ	3
		Deparia pycnosora (H.Christ) M.Kato	ミヤマシケシダ	3
		Diplazium squamigerum (Mett.) Matsum.	キヨタキシダ	1
		Woodsia manchuriensis Hook.	フクロシダ	1, 3
		Woodsia polystichoides D.C.Eaton	イワデンダ	1, 3
Thelypteridaceae	ヒメシダ科	*Thelypteris phegopteris* (L.) Sloss. ex Rydb.	ミヤマワラビ	1, 3
		Thelypteris torresiana (Gaudich.) Alston var. *calvata* (Baker) K.Iwats.	ヒメワラビ	1, 3
Blechnaceae	シシガシラ科	*Blechnum niponicum* (Kunze) Makino	シシガシラ	1, 3
Dryopteridaceae	オシダ科	*Arachniodes aristata* (G.Forst.) Tindale	ホソバカナワラビ	1
		Arachniodes mutica (Franch. et Sav.) Ohwi	シノブカグマ	1, 3
		Arachniodes rhomboidea (Wall. ex C.Presl) Ching	オオカナワラビ	3
		Dryopteris chinensis (Baker) Koidz.	ミサキカグマ	3
		Dryopteris crassirhizoma Nakai	オシダ	1, 3
		Dryopteris erythrosora (D.C.Eaton) Kuntze	ベニシダ	1, 3
		Dryopteris expansa (C.Presl) Fraser-Jenk. et Jermy	シラネワラビ	1, 3
		Dryopteris lacera (Thunb.) Kuntze	クマワラビ	3
		Dryopteris polylepis (Franch. et Sav.) C.Chr.	ミヤマクマワラビ	3
		Dryopteris sabae (Franch. et Sav.) C.Chr.	ミヤマイタチシダ	3
		Leptorumohra miqueliana (Maxim. ex Franch. et Sav.) H.Itô	ホソバナライシダ	3
		Polystichum craspedosorum (Maxim.) Diels	ツルデンダ	3
		Polystichum ovatopaleaceum (Kodama) Sa.Kurata var. *ovatopaleaceum*	ツヤナシイノデ	3
		Polystichum tripteron (Kunze) C.Presl	ジュウモンジシダ	1
Polypodiaceae	ウラボシ科	*Lepisorus onoei* (Franch. et Sav.) Ching	ヒメノキシノブ	1
		Lepisorus thunbergianus (Kaulf.) Ching	ノキシノブ	1, 3

* 1: University Forests of Tokyo University of Education (1966), 2: Takinami *et al*. (2001), 3: this survey.

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