Table 4 (continued)

Species	Collection areas				
	Valley	Subalpine		Alpine [1]	
	willows, meadows	pine, fir, spruce	wet meadows	dry meadows	rocks, scree
Oeneis c. chryxus Dbld.	++	+++	+		
O. melissa beanii Elwes				+	+++
O. polixenes brucei Edw.				++	
O. taygete edwardsi dos Passos			+	+	
O. jutta chermocki Wyatt		+			
Boloria napaea alaskensis Holland				+++	+
Boloria epithore Edw. [3a]		+			
B. eunomia nichollae Barnes & Benjamin			+		
E. eunomia dawsoni B. & McD.	+++	++			
B. frigga saga Staudinger		+	+	+	
B. improba youngi Holland				++	
B. alberta Edw.					+
B. a. astarte Dbld.				+	++
B. titania grandis B. & McD.		+++	+		
B. freija freija Thunberg		+	+		
Speyeria mormonia eurynome Edw.		+	+	++	+
Phyciodes c. campestris Behr		++			
Euphydryas editha beani Skinner				+	
E. anicia anicia Dbld.		+++		+	
Nymphalis milberti Lat.	+	+	+	+	+
N. antiopa L.		+			
Vanessa cardui L.					+
Polygonia faunus rustica Edwards		+			

[1]. Some species collected are migrants from lower elevations "hill topping".

[2]. Key to symbols: + uncommon (1-3 specimens); ++ common (4-10 specimens); +++ abundant (11+ specimens) Numbers are based on specimens collected during visits to the alpine habitat.

[3]. Additional species from nearby mountains: 3a. Horn Ridge; 3b. Mount Hamell).

Table 5. Rates of development for immatures of *Erebia magdalena saxicola.*

Stadia	Development Time (days/stadia)		Sample Size
	Minimum	Maximum	
egg	11	12	110[1]
first	4	6	75
second	8	36	31
third	14	68	18
fourth	22	90	11
fifth	99[2]	-	1
pupa	7	-	1

[1]. Numbers refer only to those individuals which matured and moulted to the next stadium.

[2]. Includes time while in diapause in an incubator (33 days below +4°C)

Larvae were reared in the laboratory. Development from egg to adult required a minimum of 165 days. Eggs and early instar larvae were maintained at 20–23°C. Development was rapid and mortality high. Table 5 summarizes rates of development

Fourth, and especially fifth instar larvae were slower in development than the first 3 instars. The surviving fifth instar larva pupated after a 99 day stadium including 63 days at 20–25°C and 33 days at +4 to -2°C. During cold treatment larvae were provided with food. One larva continued to feed at +4°C for a few days. Upon removal from the incubator fifth instar larvae were given fresh food. The larvae did not resume feeding (T=20°C, photo period natural short day). Larvae were returned to the incubator for five days at +4°C then brought out in another attempt to stimulate feeding. The temperature was raised to 25°C and they were placed under artificial photoperiod of 16 hours of light and 8 hours of dark. All larvae resumed feeding. Of the 11 reared to fifth instar and brought through the incubation process, 10 contracted a fungal infection and died, one pupated and emerged as an adult. In the molt from fifth instar to pupa, the head capsule splits (Figure 9) and is shed posteriorly with the rest of the larval cuticle. Pupal period at 25°C had a duration of 7 days (n=1) and a female emerged.

By comparison with the natural time span available for development with the rate of development in Table 5, I infer that larvae falcultatively overwinter in Alberta as second or third instar larvae with potential for diapause in any larval instar. Rates of development barring diapause are sufficient that the species should normally complete one generation per year, but two or three years may be required pending unfavourable climatic conditions.

Food Plants.— Larvae were fed grasses throughout rearing. First instar larvae were given a choice of black lichen, fleabane, willow, dandeleon, larkspur, lawngrass clippings, and barley. Larvae readily ate grass clippings and barley. The lawn clippings were a mixture of creeping fescue and Kentucky blue