

第 6 章 図表題名

表 6-1: Table 6-1 Biomass, Respiration and Assimilation of entire earthworm

表 6-2: Table 6-2 Population metabolisms of *Amyntas* sp. (H-1) and *Lumbricus terrestris*

図 6-1: Fig. 6-1. Seasonal change in (a) biomass and (b) respiration of earthworm in area H 1968.

図 6-2: Fig. 6-2. Seasonal change in (a) biomass and (b) respiration of earthworms in area K 1968.

図 6-3: Fig. 6-3. Seasonal change in (a) biomass and (b) respiration of earthworms in area D
1971-1973.

図 6-4: Fig. 6-4. Seasonal change in (a) biomass and (b) respiration of earthworms in area G
1971-1972.

Table 6-1 Biomass, Respiration and Assimilation of entire earthworm

Area Year Period	Area G		Area D			Area H	Area K	IBP Minamata
	1971 8 - 12	1972 1 - 12	1971 3 - 12	1972 1- 12	1973 1- 3	1968 3 - 11	1968 3- 10	1970 - 1971 '70 6 - '71 5
Maximum biomass mg dry wt m ⁻²	1,983	4,475	5,158	10,653	4,162	5,116	926	2,152
Average biomass mg dry wt m ⁻²	1,665	2,428	1,776	4,793	2,953	1,834	446	948
Total respiration KJ m ⁻² (Kcal m ⁻²)	209	834	439	1,079	104	315	98	255 (60.9)
Total assimilation KJ m ⁻² (Kcal m ⁻²)	239	975	650	1,448	127	481	124	399 (95.5)
Resource requirement g dry wt m ⁻²		5,095	2,503	6,073		1,946	584	1,071
Contribution by litter feeder g dry wt m ⁻²		264	1,193	3,546		1,687		
Pellet production g dry wt m ⁻²		17,440	9,297	23,104		7,198	2,068	

Table 6-2 Population metabolisms of *Amyntas* sp. (H-1) and *Lumbricus terrestris*

Area Dates Species		area D		Merlewood
		1972 Entire earthworm	1972 <i>Amyntas</i> sp. (H-1)	1960 <i>Lumbricus terrestris</i>
Average biomass	gWW m ⁻²	4.3	4.4 (av. Active month)	153.0
	gDW m ⁻²			24.0
Maximum biomass	gWW m ⁻²	10.7	8.4	228.4
	gDW m ⁻²			35.9
Net production	gWW m ⁻²	121.2	11.5	61.5
	gDW m ⁻²			9.7
	Kcal m ⁻²			39.8
	KJ m ⁻²			166.7
Respiration	Kcal m ⁻²	254.2	140.8	135.5
	KJ m ⁻²	1063.6	589.3	567.0
Assimilation (P+R)	Kcal m ⁻²	375.3	198.9	175.4
	KJ m ⁻²	1570.5	832.2	733.7
Maximum Food requirement	gDW m ⁻² d ⁻¹		39.4	6.2
Production	gDW m ⁻² y ⁻¹	1176.5	1176.5	300
	Kcal m ⁻² y ⁻¹	5056.6	5056.6	1286
	KJ m ⁻² y ⁻¹	21157.2	21157.2	5380.7
Percentage of Assimilation to primary production		0.0742	0.0393	0.13
Ratio of maximum food requirement to primary production			29.83	48.7

*1; chapter 3, *2; chapter 3, *3; chapter 2, *4; Lakhani and Satchell (1970), *5; Sachell (1967)

1, Average biomass in active months

2, The regression coefficient of *L. terrestris* between body wet weight and dry weight was represented as $WW = DW \times 6.37$ (Lakhani and Satchell, 1970). Then, the dry weight of this species can be calculated as $DW = WW / 6.37$

3, The mean value of the net production estimated by Lakhani and Satchell (1970) ($50 - 73 \text{ g WW m}^{-2} \text{ y}^{-1}$)

4, The caloric value of the animal body of *L. terrestris* was $4.1256 \text{ Kcal g}^{-1} \text{ (DW)}$. (Commius and Wuycheck, 1971). Then, the net production of the population was calculated as 39.83 Kcal (4.125×9.655).

5, Annual O₂ consumption of *L. terrestris* in Merlewood 1960 was approximated as $22.5 \text{ l O}_2 \text{ m}^{-2} \text{ y}^{-1}$. As the average biomass of this population was corrected from 120 g WW m^{-2} (Satchell 1967) to 153 gWW m^{-2} (Lakhani and Satchell 1970). Then, Annual O₂ consumption of this population should be corrected to be $28.38 \text{ l O}_2 \text{ m}^{-2}$. And the respiration in calorie was calculated by use of $4.779 \text{ Kcal per l O}_2$ (Heilbraun 1947, cited by Oconner 1967).

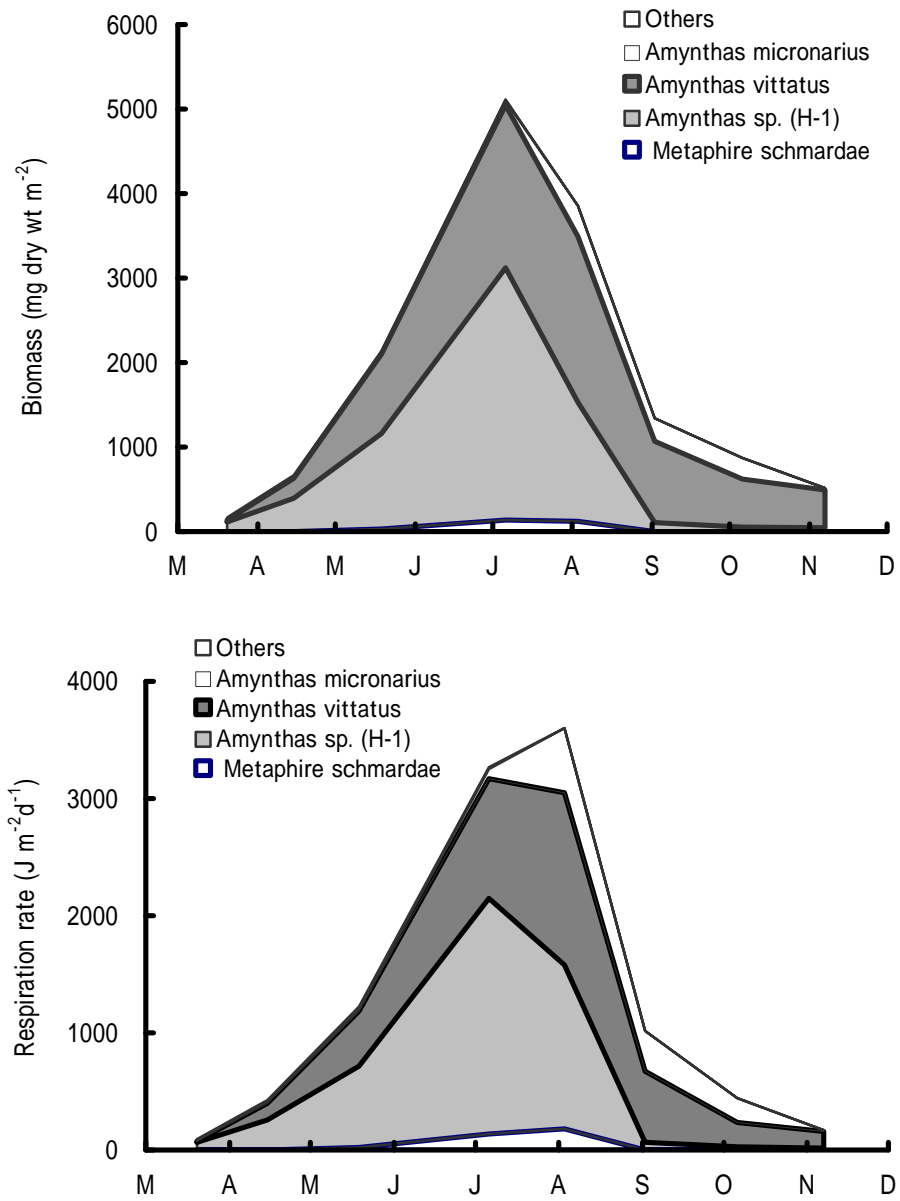


Fig. 6-1. Seasonal change in (a) biomass and (b) respiration of earthworm in area H 1968.

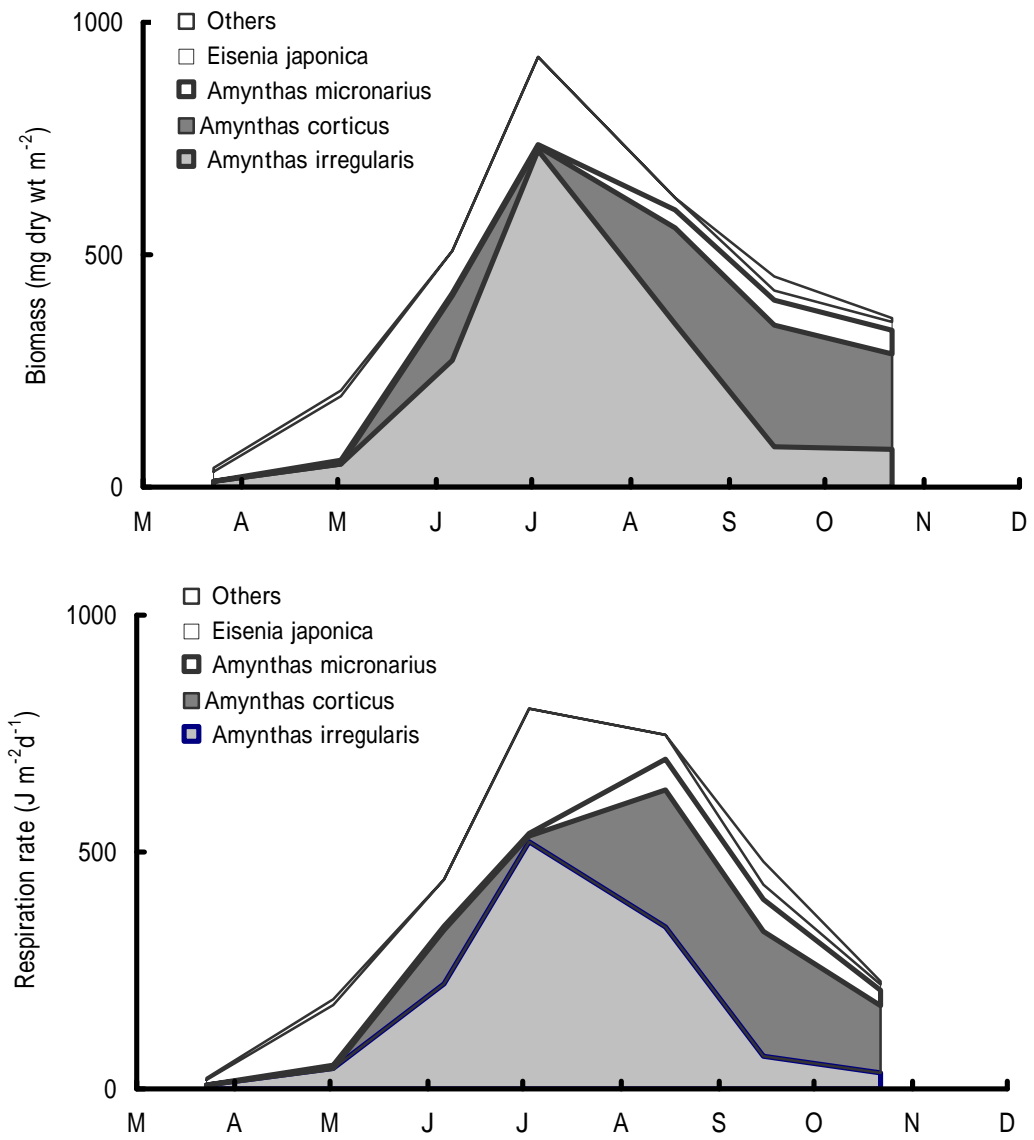


Fig. 6-2. Seasonal change in (a) biomass and (b) respiration of earthworms in area K 1968.

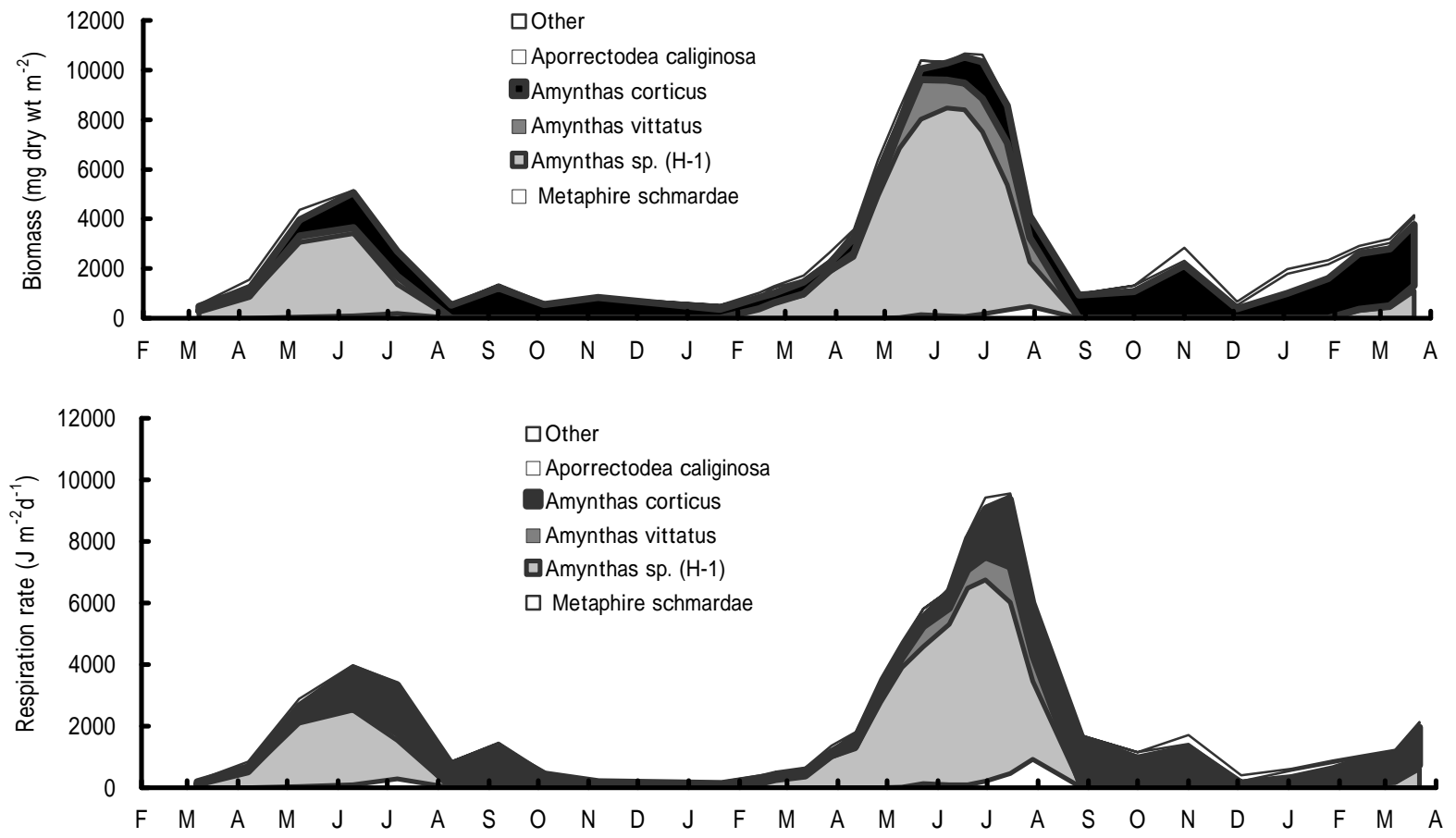


Fig. 6-3. Seasonal change in (a) biomass and (b) respiration of earthworms in area D 1971-1973.

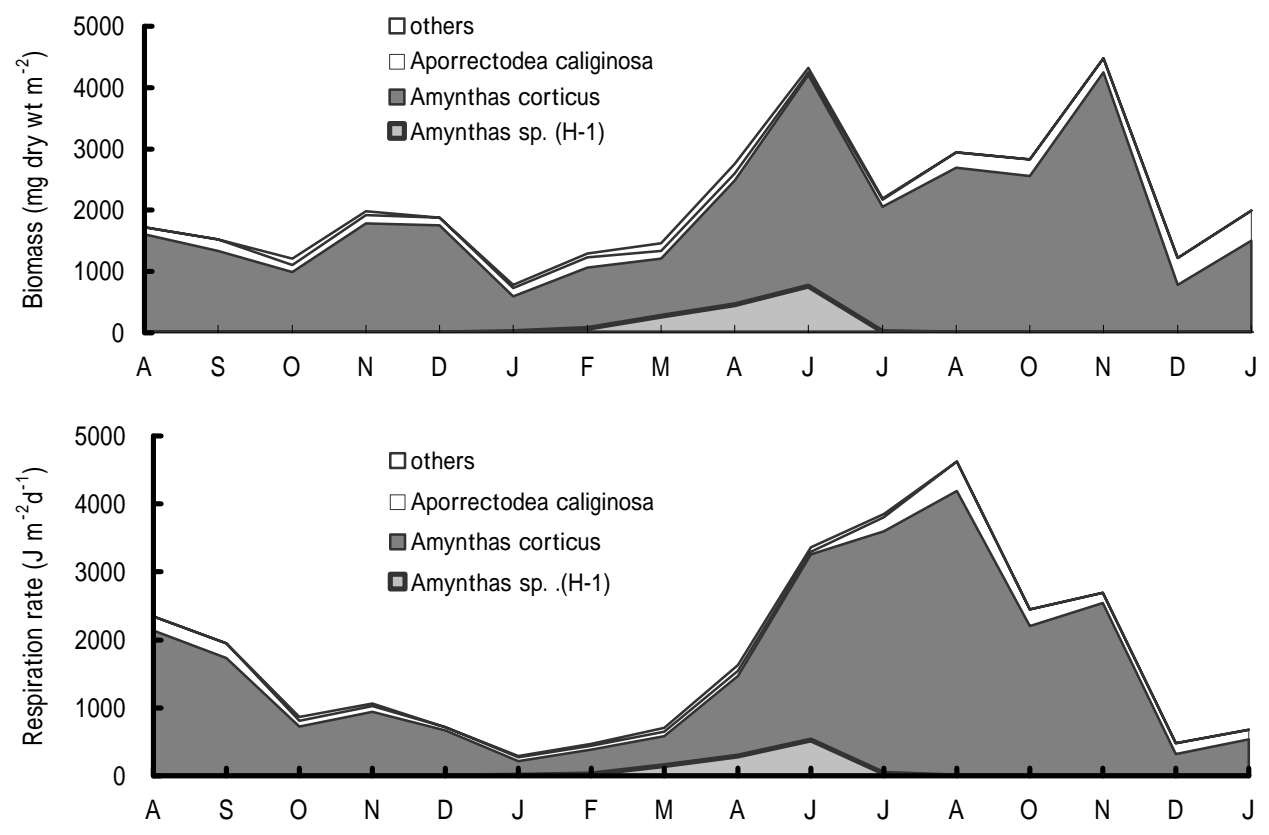


Fig. 6-4. Seasonal change in (a) biomass and (b) respiration of earthworms in area G 1971-1972.