taxon, and already we must invoke the traditional apology "More studies are needed."

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	Dorsal					Ventral				
	C	TR	P	F	TI	C	TR	P	F	TI
12	-	-	amp	p	p	-	-	amp	amp	m
13	-	-	amp	p	p	-	-	amp	amp	m
14	-	-	am	p	p	-	m	amp	amp	m
15	-	-	am	m	-	-	m	mp	amp	m

Table 1. Qualitative plectrotaxy of last four pairs of legs of male *Serrobius pulchellus* from Hampden-Sydney College, Prince Edward Co., Va. In the other two males examined, and in the type material, there are 7 spurs in series DP on leg 15 instead of **a** and **m**.

Abbreviations: A, anterior, M, median, p, posterior; C, coxa, TR, trochanter, P, prefemur, F, femur, TI, tibia.

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Pyrrhalta rufosanguinea (Coleoptera: Chrysomelidae): A Monophagous Leaf Beetle of *Rhododendron periclymenoides* (Ericaceae)?

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The seventeen native American azalea species are deciduous members of the genus *Rhododendron*. *Rhododendron periclymenoides* (Michaux) Shinners, formerly known as *R. nudiflorum* (L.) Torrey, occurs in Virginia from the lower elevations of the Blue Ridge to the Coastal Plain. *Rhododendron atlanticum* (Ashe) Rehder is a species of the Coastal Plain and Fall Belt. These two species have been reported to hybridize wherever their ranges overlap (Galle, 1967) but no detailed analysis of the pattern of hybridization has been conducted. My morphometric and chemical analyses of natural hybridization between these two ericaceous shrubs (in progress) indicates introgression to both azalea species.

In 1982, I collected herbivorous insects from seven native azalea species in six southeastern states. One of these phytophagous insects was a reddish-brown leaf beetle about 5 mm long which was feeding on the leaves of *R. periclymenoides*. This beetle was identified by R. E. White (USDA, Systematic Entomological Laboratory, Beltsville, MD) as *Pyrrhalta* (=*Tricholochomaea*) *rufosanguinea* (Say). Wilcox (1979) reported *R. periclymenoides* as a host plant of *P. rufosanguinea* but I found no other information on its host range or biology. In 1985, I surveyed six populations of *R. periclymenoides*, two populations of *R. atlanticum* and a putative hybrid population in central Virginia for herbivorous insects. I found *P. rufosanguinea* only on *R. pericly-*

menoides plants. In the putative hybrid population, I found leaf beetle damage judged to be caused by *P. rufosanguinea* only on *R. periclymenoides* or on plants believed to be introgressants to this species but no leaf beetles were seen. I also found a mixed population of *R. periclymenoides* and *R. serrulatum* (Small) Millais and observed the leaf beetle only on *R. periclymenoides*. My previous taxonomic work (King, 1977, 1980) suggested that *R. periclymenoides* is evolutionarily most closely related to *R. canescens* (Michaux) Sweet and *R. roseum* (Loisel.) Rehder. Li (1957) treated all three species along with *R. alabamense* Rehder as a species group. In my 1982 survey I did not find *P. rufosanguinea* on *R. canescens, R. roseum* or *R. alabamense* nor on the distantly related *R. calendulaceum* (Michaux) Torrey, but only one to three populations of each were examined.

The populations of *R. periclymenoides* that I examined were found intermixed with *Kalmia latifolia* L., *Vaccinium corymbosum* L., *Vaccinium stamineum* L. and *Gaylussacia baccata* (Wang.) K. Koch, which are all ericaceous shrubs. *Pyrrhalta rufosanguinea* was not found on any of these plant taxa. Wilcox (1979) reports *Pyrrhalta kalmiae* (Fall) from *K. latifolia, P. vaccinnii* (Fall) from five species of *Vaccinium*, and *P. sablensis* Brown from *Vaccinium macrocarpon* Ait. I did not see any of these leaf beetles in the azalea populations that I studied. I have not yet searched plants outside of the family Ericaceae for the presence of *P. rufosanguinea*, but my field work to date suggests that the adult leaf beetles are monophagous for *Rhododendron periclymenoides*.

I found no literature on the life history of *P. rufosanguinea*. In my study, I first found adult beetles in the field in central Virginia in late May. In June of 1989 I collected beetles from six populations of *R. periclymenoides* ranging in size from about 25 to several hundred individuals. The beetles were usually present on the upper leaf surfaces and not abundant. I visited each population daily for 15 days and collected 150 beetles. The populations were visited in a different order each day so that morning, mid-day and late afternoon collections would be included for each population. I made only casual field observations in July and August. No observations of nocturnal behavior have been made. Beetles that were collected were maintained in one gallon plastic cages in an incubator from June 1 through November 8 and fed *R. periclymenoides* foliage freshly collected or stored in sealed plastic bags in a refrigerator for 2 - 3 days. The last foliage collected (October 5) was stored in a refrigerator and used in an attempt to maintain the colony until November 8. I made no attempt to collect foliage after October 5 because leaf senescence had begun. Stems of the plants were inserted into plastic vials of water and placed in the bottom of the cages. Fresh foliage was added every 2 - 3 days and older foliage removed in 5 - 6 days. The incubation conditions were 20°C and 80 - 90% relative humidity with a 14 hr photoperiod (400 footcandles). I eventually covered the cages with 50% shade cloth because this seemed to enhance feeding behavior.

Laboratory females laid pale yellow-orange eggs in clusters of 8 - 10 beneath the leaves, in the axils of leaves, or in the forks of small twigs. I assumed that the leaves of *R. periclymenoides* are the natural food for the larvae, so I transferred about 20 eggs to moist paper towels placed in the bottom of small plastic cages. I added fresh leaves each day. The eggs hatched in 7 - 10 days in the incubator and developed into black larvae that mined the azalea leaves. Only three were successfully reared to adults. I have not seen eggs and larvae in the field.

Although more detailed study is needed, the life cycle of *P. rufosanguinea* resembles that described for the elm leaf beetle (*P. luteola* (Muller); Johnson & Lyon 1988). The number of generations per year and the life span of adults of *P. rufosanguinea* are unknown but, like the elm leaf beetle, adults probably overwinter in protected areas and there are probably 2 -3 generations each year. In the laboratory colony of *P. rufosanguinea*, adult mortality was low from June through August (3%) but increased to 50% by October. By November, the remaining beetles had ceased to feed on the foliage stored in the refrigerator. I made an unsuccessful attempt to feed them thawed foliage that had been kept frozen at -30°C since July. The colony was terminated on November 8. A number of factors may have contributed to the increasing mortality including senescence of the beetles and decreasing palatability of the leaves.

Collection sites and numbers for *R. periclymenoides* from which *P. rufosanguinea* was collected are as follows: Virginia: **Caroline** Co.: U.S. Route 301, 4.2 km north of Dawn (*King 2300*); U.S. Route 1, 4.8 km south of Carmel Church along North Anna River and Long Creek (*King 2230*); **Hanover** Co.: U.S. Route 1, 6.4 km north of Ashland, Little River (*King 2260*); Virginia Route 54 about 8 km west of Ashland, South Anna River (*King 2220*); Mechumps Creek, County Route 662, about 3.2 km east of Ashland (*King 2250-1*); logging road off County Route 662, about 3.2 km to intermittent stream (*King 2250-2*).

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Subcoccinella vigintiquatuorpunctata (L.), First Virginia Record and New North American Host of an Adventive Lady Beetle (Coleoptera: Coccinellidae)

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Subcoccinella vigintiquatuorpunctata (L.) belongs to the phytophagous subfamily Epilachninae of a mainly predacious family, the Coccinellidae or lady beetles. It is widely distributed in the Old World, ranging throughout Britain and continental Europe and occurring in parts of northern Africa, Asia Minor, and the former USSR. The broad host range includes more than 70 plant species, but Caryophyllaceae and Fabaceae are favored; this lady beetle is a pest of alfalfa *(Medicago sativa* L.) in Europe (USDA, 1974; Richards et al., 1976; Ali, 1979). Adults and larvae feed from the abaxial surface of host foliage, cleaning out the lower epidermis and palisade cells. Injured leaves, which have the upper epidermis intact, show a characteristic lacework of transparent, parallel strips. Univoltine in Britain, populations on the European continent are generally bivoltine; the adults overwinter in protected sites near host plants (Marriner, 1927; Tanasijević, 1958; Richards et al., 1976; Ali, 1979; Wheeler & Henry, 1981; Baldwin, 1988).

This common Palearctic coccinellid was first collected in North America in Pennsylvania in 1972 and New Jersey in 1973 (USDA, 1974). Known unofficially in the United States as the European alfalfa beetle, it has since been recorded from Maryland, Missouri, New York, Ohio, and West Virginia. Populations have been found mainly on bouncing bet *(Saponaria officinalis* L., Caryophyllaceae) along railroad rights-of-way, and rail traffic is believed to have helped disperse the beetle following its apparent accidental introduction with commerce. Larval development has been limited to caryophyllaceous plants: white campion *(Silene latifolia* Poiret = *Lychnis alba)* and wild pink *(S. caroliniana* var. *pensylvanica* (Michx.) Fern.), in addition to *Saponaria officinalis*. Adult feeding has been observed on tall oatgrass *(Arrhenatherum*