

## FINESCALE TRIGGERFISH (*BALISTES POLYLEPIS*) AND ROOSTERFISH (*NEMATISTIUS PECTORALIS*) PRESENCE IN TEMPERATE WATERS OFF BAJA CALIFORNIA, MÉXICO: EVIDENCE OF EL NIÑO CONDITIONS

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### ABSTRACT

I report here on several unusual catches that may reflect on El Niño conditions off northern Baja California. Eleven finescale triggerfish, *Balistes polylepis*, were captured in waters off San Martín Island on July 30–31, 2011. This island is located (lat 30°29'29.50"N, long 116°6'52.02"W) close to San Quintín Bay in the northern Pacific off Baja California, Mexico, a temperate area influenced by strong upwelling. I also report on the catch of a roosterfish, *Nematistius pectoralis*, at Todos Santos Bay, Ensenada (close to El Sauzal port) (lat 31°53'38.22"N, long 116°41'58.36"W), on September 8, 2012. Both the triggerfish and roosterfish are tropical species, and their presence may be associated with the El Niño of 2009–10 and a weak El Niño in 2012, respectively. These occurrences constitute the first record both for finescale triggerfish in the San Quintín area and for roosterfish at Todos Santos Bay.

### INTRODUCTION

The presence of tropical fish species in temperate waters of northern Baja California, México, is uncommon, and when registered are associated with warm years. I report here on unusual catches of two tropical and subtropical fish species, the finescale triggerfish (*Balistes polylepis*) in waters off the coast of San Quintín, and roosterfish (*Nematistius pectoralis*) at Todos Santos Bay. Both species arrived in different years, possibly attributed to warm waters during the recent El Niño conditions in 2009–10 and 2012.

#### Finescale Triggerfish (*Balistes polylepis* Steindachner, 1876)

The triggerfish was observed during the monthly monitoring (Saturday, 30 July 2011) of the sport fishing catch at San Quintín, Baja California, México (fig. 1). During the surveys, I attempt to identify, measure, and weigh all of the fishes brought in by the sport fishing boat fleet. Information on fishing site, depth, number of anglers, bait used, surface seawater temperature, and boat name were also documented. Temperature data at fishing depth was obtained from the oceanographic cruise of the IMECOCAL Program on July 24, 2011 ([\[imecocal.cicese.mx/\]\(http://imecocal.cicese.mx/\); last accessed 31 July, 2012\), at the closest station from San Martín Island \(station 107.32: lat 30°27.49N, long 116°09.79W\).](http://</a></p></div><div data-bbox=)

At San Quintín, I monitored seven boats carrying recreational anglers. The catch included kelp bass (*Paralabrax clathratus*), ocean whitefish (*Caulolatilus princeps*), sheephead (*Semicossyphus pulcher*), lingcod (*Ophiodon elongatus*), vermilion rockfish (*Sebastes miniatus*), starry rockfish (*S. constellatus*), and bocaccio (*S. paucispinis*). One of the boats returned with four individuals of the finescale triggerfish (*B. polylepis*) that were taken using hook-and-rod and squid as bait in shallow waters off San Martín Island, Baja California, a volcanic island with central coordinates 30°29'29.50"N, 116°6'52.02"W, situated 5.2 km north of San Quintín Bay (fig. 1). The catch site was at the northeastern part of the island, on a rocky bottom, in 15–20 m depth (lat 31°53'38.22"N, long 116°41'58.36"W). This spot is located at the tip of a small rocky barrier with a light beacon that divides a protected beach from a small lagoon inhabited by sea lions. At the fishing site, the sea surface temperature was 16.1°C; the recorded temperatures at 15 and 20 m-depths were 15.5°C and 14.8°C, respectively. The smallest triggerfish (fig. 2) measured 410 mm total length (TL) (318 mm standard length, SL) and weighed 1,225 g. Lengths and weights of the other three individuals were: 420 mm TL (330 mm SL); 1,067 g; 430 mm TL (355 mm SL), 1,627 g; and 450 mm TL (355 mm SL), 1,487 g. The next day, 31 July 2011, another boat captured eleven triggerfish at the same site. These fish were identified to species by the combination of the following characteristics: a deep and compressed body; olive brown skin color; hard skin with small scales on the deep, first dorsal fin with three spines, followed by a gap; and a second fin with 27 dorsal rays; an anal fin with 24 soft rays and lacking spines; a pectoral fin with 14 soft rays; and a caudal fin concave with prolonged lobes, a small gill slit, and a small mouth with incisor-like teeth.

#### Roosterfish (*Nematistius pectoralis* Gill, 1862)

On 8 September 2012, a roosterfish (fig. 3) was captured by a small panga with a gill net, at Todos Santos Bay, Baja California. Also taken in that catch

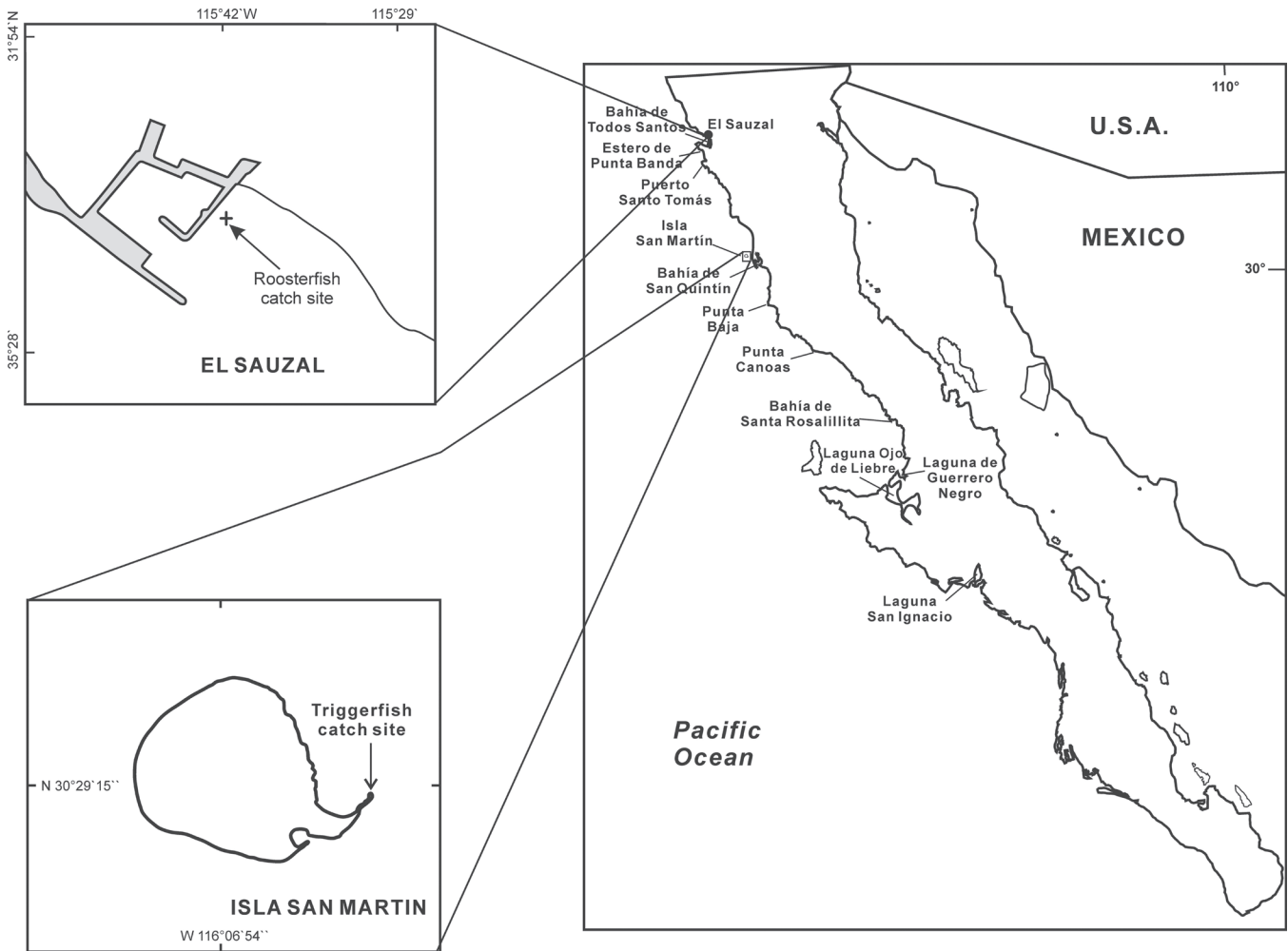


Figure 1. Finescale triggerfish catch site at Isla San Martín, Baja California, México, and roosterfish catch site at Todos Santos Bay.

were California corbina (*Menticirrhus undulatus*), California halibut (*Paralichthys californicus*), spotfin croaker (*Roncador stearnsii*), and white croaker (*Genyonemus lineatus*). The fish was taken near El Sauzal port (8 km north of Ensenada) close to the side east jetty (fig. 1), on a sandy bottom 8 m of water (lat 31°53'38.22"N, long 116°41'58.36"W). The surface seawater temperature at Todos Santos Bay was 23.4°C. This individual measured 215 mm TL, 175 mm SL, weighed 124 g, and was preserved in ethanol. It was identified by the following characteristics: bluish body and silvery below; four black stripes, the first over the eye, the second over the opercle, third and fourth in diagonal along back and sides; 7 long spines on first dorsal fin, dorsal spines black with middle of spines yellow; one spine and 26 rays on second dorsal fin; pectoral rays 16; two spines and 15 rays in anal fin; pectoral fin with 16 rays; and caudal tail forked.

## DISCUSSION

The finescale triggerfish is mostly a tropical and subtropical species distributed along the eastern Pacific

Coast, from San Francisco, California, to San Antonio (33°35'S), Chile (Miller and Lea 1972; Brito 2003; Love 2011), including the Gulf of California, Hawaii, and Galapagos Islands (Berry and Baldwin 1966). Although usually rare off southern California, large numbers were caught nearshore during the 1982–83 El Niño (Love 2011). The roosterfish is a tropical species with a distribution at the eastern Pacific from southernmost California (one record in San Clemente Island, California) to Peru, including Galapagos Islands and Gulf of California (Miller and Lea 1972).

Triggerfish and roosterfish are fish species found in the artisanal commercial fisheries in the Southern Baja California, and Gulf of California (Bizarro et al. 2007; Smith et al. 2009). Roosterfish is a game fish and is usually for catch and release only.

These catches are particularly noteworthy because neither species has been recorded from northern Baja California, despite a number fish surveys (including rocky reef, sandy seafloor, and sheltered embayment habitats) along this coast [Ensenada region (Díaz-Díaz

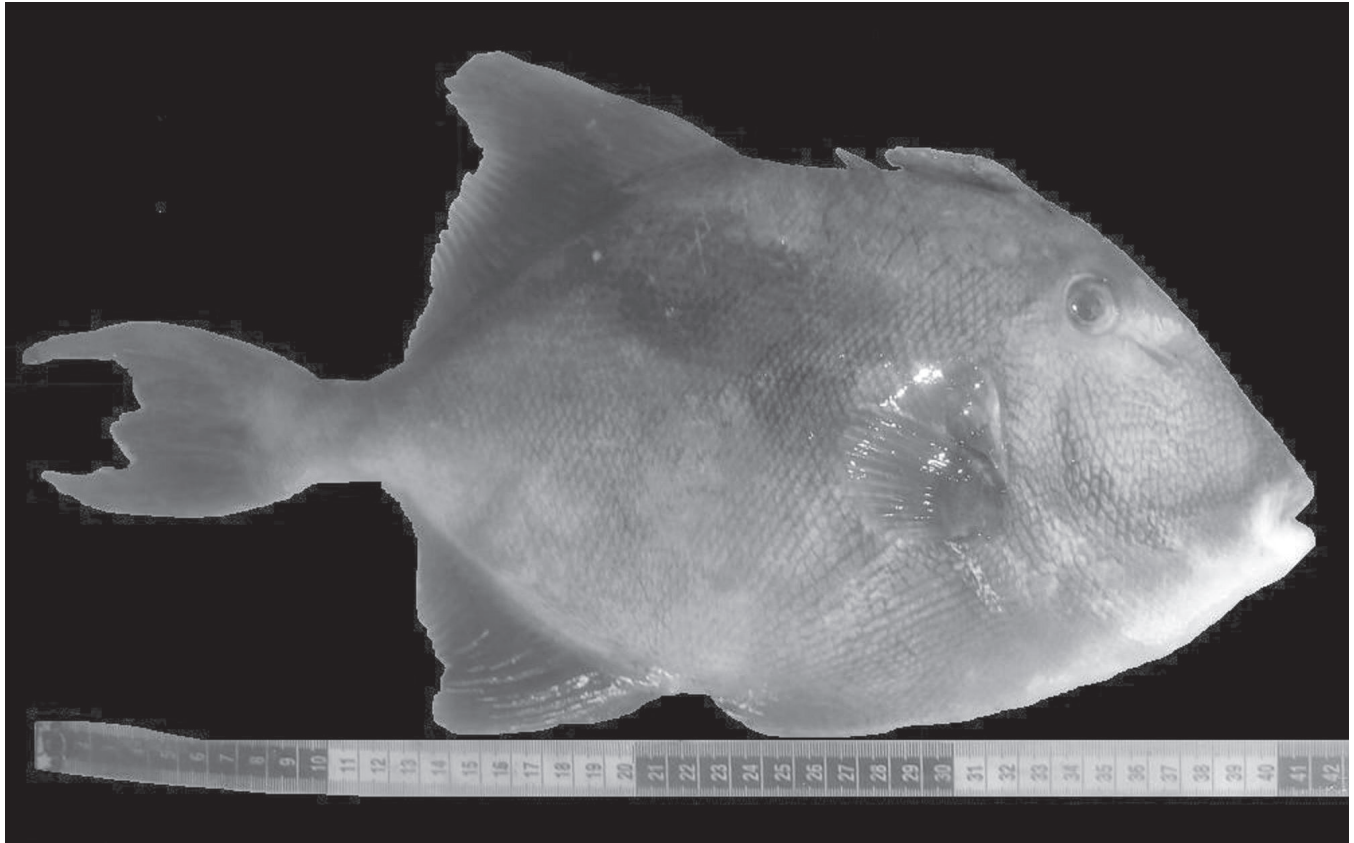


Figure 2. Finescale triggerfish, *Balistes polylepis*, captured on July 30, 2011, at San Martín Island, Baja California, México.

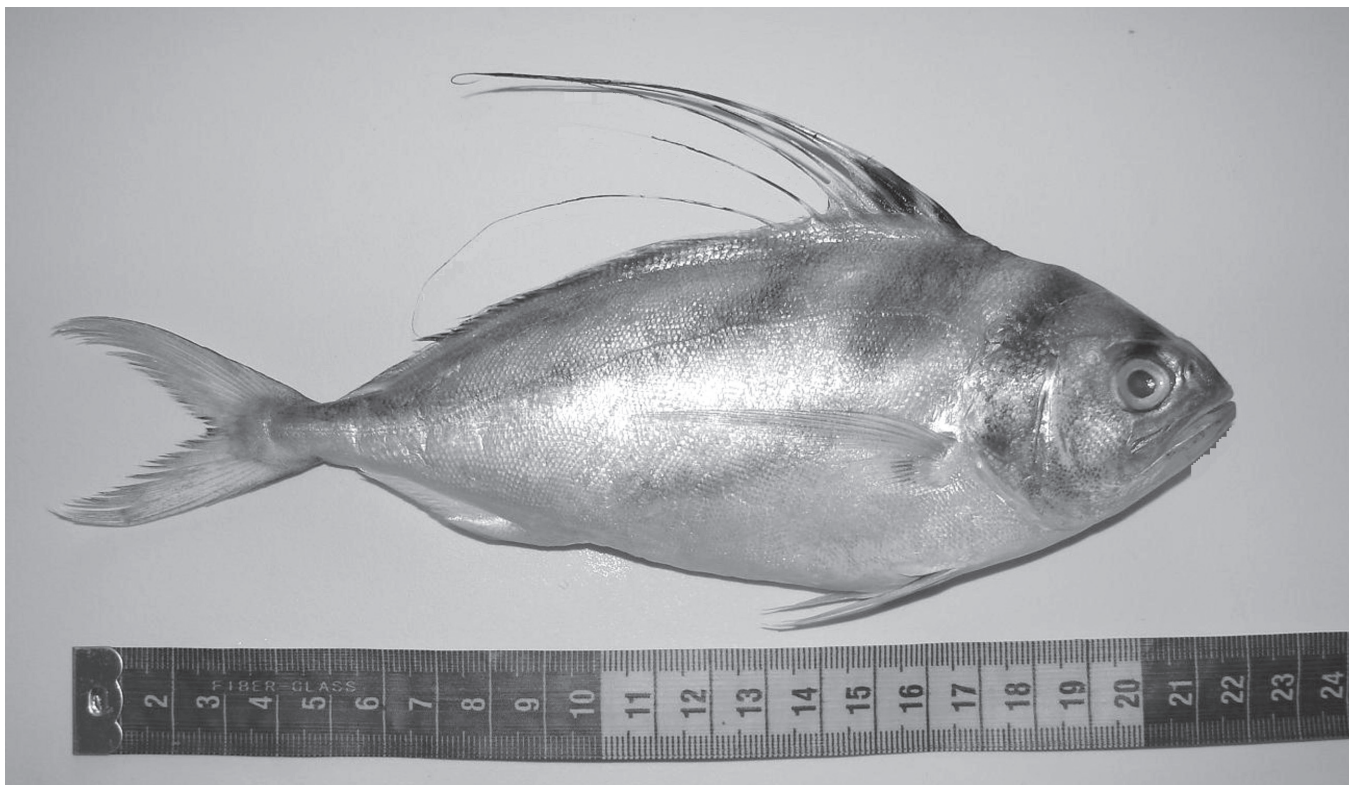


Figure 3. Roosterfish, *Nematistius pectoralis*, captured on September 8, 2012, at Todos Santos Bay, Baja California, México.



and Hammann 1987; Hammann and Rosales-Casián 1990; Rodríguez-Medrano 1993), Punta Banda Estuary, 31°45'N, 116°38'W (Beltrán-Felix et al. 1986); bay and coastal system of San Quintín (Rosales-Casián 1997a,b; Rosales-Casián 2004); El Rosario Bay (Punta Baja) (Rosales-Casián 2011); Santa Rosalillita Bay (unpublished data, 28°40'N, 114°15'W); eight artisanal fishing sites along northwestern coast of Baja California, from the Santo Tomas Port, 31°33'N, 116°40'W, to Canoas Point, 29°25'N, 115°12'W (Rosales-Casián and Gonzalez-Camacho 2003)].

While northern Baja California is normally characterized by cold waters created by strong upwelling (Álvarez-Borrego 2004), during the 1997–98 El Niño some tropical fish species were taken in San Quintín Bay: one juvenile of the burrito or white grunt *Haemulopsis leuciscus* (Rosales-Casián and Ruiz-Campos 1999); the bigscale goatfish (*Pseudupeneus grandisquamis*), bullseye puffer (*Spherooides annulatus*), and paloma pompano (*Trachinotus paitensis*); all those species were collected with otter-trawl tows at 5 m-depth, but unrecorded in cold years 1994–95 (Rosales-Casián 2004).

The arrival of the triggerfish at San Martin Island was possibly due to a moderate intensity El Niño during 2009–10, although captures occurred at the end of the La Niña 2011 (NOAA's El Niño page), available at <http://www.elnino.noaa.gov/>; last accessed 10 August, 2012. The roosterfish presence at Todos Santos Bay, was possibly due to conditions of an undeclared and weak El Niño condition during 2012.

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## LITERATURE CITED

- Álvarez-Borrego, S. 2004. Nutrient and phytoplankton dynamics in a coastal lagoon strongly affected by coastal upwellings. *Cienc. Marinas* 30(1A):1–19.
- Beltrán-Felix, J. L., M. G. Hammann, A. Chagoya-Guzmán, and S. Álvarez-Borrego. 1986. Ichthyofauna of Estero de Punta Banda, Ensenada, Baja California, México, before a major dredging operation. *Cienc. Marinas* 11:79–92.
- Berry, H. F. and W. J. Baldwin. 1966. Triggerfishes (Balistidae) of the eastern Pacific. *Proc. Calif. Acad. Sci.* 34:429–474.
- Bizzarro, J. J., W. D. Smith, R. E. Hueter, J. Tyminski, J. F. Márquez-Farías, J. L. Castillo-Géniz, G. M. Cailliet, and C. J. Villavicencio-Garayza. 2007. The status of shark and ray fishery resources in the Gulf of California: Applied research to improve management and conservation. Moss Landing Marine Laboratories Tech. Pub. 2009–01. 242 p.
- Brito, J. L. 2003. Nuevos registros de *Balistes polylepis* (Balistidae), *Spherooides lobatus* (Tetraodontidae), *Mola mola* y *M. ramsayi* (Molidae) en San Antonio, Chile (Pisces, Tetraodontiformes). *Invest. Mar. Valparaíso* 3:77–83.
- Díaz-Díaz, M. E. and M. G. Hammann. 1987. Relaciones tróficas de los peces asociados a un manto de *Macrocystis pyrifera* en la Bahía de Todos Santos, Baja California, México. *Cienc. Marinas* 13:81–96.
- Hammann, M. G. and J. A. Rosales-Casián. 1990. Taxonomía y Estructura de la Comunidad de Peces del Estero de Punta Banda y Bahía de Todos Santos, Baja California, México. In: De la Rosa-Vélez, J. and F. Gonzalez-Farías (eds.). *Temas de Oceanografía Biológica en México*. Editorial UABC, Ensenada. pp. 153–192.
- IMECOCAL: Investigaciones Mexicanas de la Corriente de California. 2011. Centro de Investigación Científica y de Educación Superior de Ensenada, B.C. Available at: <http://imecocal.cicese.mx/>.
- Love, M. S. 2011. Certainly more than you want to know about the fishes of the Pacific coast, a postmodern experience. Really Big Press, Santa Barbara, 645 pp.
- Miller, D. J. and R. Lea. 1972. Guide to the coastal marine fishes of California. *Bull. Calif. Dept. Fish and Game*. No. 157. 235 pp.
- National Oceanographic and Atmospheric Administration (NOAA). 2012. NOAA's El Niño page. Available at <http://www.elnino.noaa.gov/>.
- Rodríguez-Medrano, M. C. 1993. Descripción y análisis biológico de la pesca deportiva en la Bahía de Todos Santos, Ensenada Baja California. M.Sc. Dissertation, Centro de Investigación Científica y de Educación Superior de Ensenada, B.C. México. 88 pp.
- Rosales-Casián, J. A. 1997a. Inshore soft-bottom fishes of two coastal lagoons on the Northern Pacific coast of Baja California. *Calif. Coop. Oceanic Fish. Invest. Rep.* 38:180–192.
- Rosales-Casián, J. A. 1997b. Estructura de la comunidad de peces y el uso de los ambientes de bahías, lagunas y costa abierta en el Pacífico Norte de Baja California. PhD Dissertation, Centro de Investigación Científica y de Educación Superior de Ensenada, B.C. México. 201 pp.
- Rosales-Casián, J. A. 2004. Tropical fish species as indicador of 1997–98 El Niño in Bahía de San Quintín, Baja California, México. *Bull. South. Calif. Acad. Sci.* 103:20–23.
- Rosales-Casián, J. A. 2011. The fish assemblages from the nearshore area of Punta Baja, B.C., México, the southern limit of the Southern California Bight. *Calif. Coop. Oceanic Fish. Invest. Rep.* 52:168–181.
- Rosales-Casián, J. A. and J. R. Gonzalez-Camacho. 2003. Abundance and Importance of fish species from the artisanal fishery on the Pacific coast of Northern Baja California. *Bull. South. Calif. Acad. Sci.* 102:51–65.
- Rosales-Casián, J. A. and G. Ruiz-Campos. 1999. Northern range extension of the white grunt, *Haemulopsis leuciscus*. *California Fish and Game* 85:135–137.
- Smith, W. D., J. J. Bizzarro, G. M. Cailliet. 2009. The artisanal elasmobranch fishery on the east coast of Baja California, México: Characteristics and management considerations. *Ciencias Marinas* 35(2): 209–236.