

THE GENUS *IREPACMA* (LEPIDOPTERA: OECOPHORIDAE)  
FROM CHINA, CHECKLIST, KEY TO THE SPECIES, AND  
DESCRIPTIONS OF NEW SPECIES

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Twelve species of the genus *Irepacma* MORIUTI, SAITO et LEWVANICH are treated from China, with four described as new to science: *I. curva* sp. n., *I. bifida* sp. n., *I. lanceolata* sp. n. and *I. abnormis* sp. n. An identification key for the Chinese species is given. With 12 figures.

Key words: Lepidoptera, Oecophoridae, *Irepacma*, new species, China

## INTRODUCTION

The genus *Irepacma*, along with *Ripeacma*, was separated from *Periacma* MEYRICK by MORIUTI *et al.* (1985) when studying the specimens collected during the lepidopterological expeditions to Thailand. The three genera are closely related superficially, with broad fore wings and the two-segmented labial palpi in the male being the most striking characters. However, they can be easily separated from each other by the genital structures. The typical character to distinguish *Irepacma* from its two allies is the absence of apophyses anteriores in the female genitalia.

To date, thirteen species in *Irepacma* have been described worldwide. Among the known species, four were reported from Thailand (MORIUTI *et al.* 1989), one was described from Burma (MEYRICK, 1894) but later transferred to the present genus (MORIUTI *et al.* 1989), and eight were described from China (WANG & ZHENG 1997, WANG & LI 2002, WANG *et al.* 2002). Besides, further species await to be transferred from *Periacma* MEYRICK to the present genus after examination of the types.

The aim of the present paper is to review the genus *Irepacma* in China, with descriptions of the new species.

The studied specimens, including the types, are deposited in the Department of Biology, Nankai University (DBNU), Tianjin, China.

CHECKLIST AND DISTRIBUTION  
OF IREPACMA FROM CHINA

- pallidia* WANG et ZHENG, 1997 – Distribution: Shaanxi, Gansu, Henan, Guizhou  
*grandis* WANG et ZHENG, 1997 – Distribution: Shaanxi  
*furvamacularis* WANG et ZHENG, 1997 – Distribution: Shaanxi  
*magnignatha* WANG et LI, 2002 – Distribution: Guizhou  
*pycnocephala* WANG et LI, 2002 – Distribution: Hubei, Hunan  
*asymmetrica* WANG et LI, 2002 – Distribution: Yunnan  
*weishana* WANG et LI, 2002 – Distribution: Yunnan  
*hainanensis* WANG, LIU et LI, 2002 – Distribution: Hainan  
*curva* sp. n. – Distribution: Guizhou  
*bifida* sp. n. – Distribution: Guizhou  
*lanceolata* sp. n. – Distribution: Hubei  
*abnormis* sp. n. – Distribution: Guizhou

KEY TO THE SPECIES OF IREPACMA FROM CHINA

- |   |   |                          |
|---|---|--------------------------|
| 1 | Fore wing without spot or streak  | 2                        |
| – | Fore wing with spots or short streak and spots  | 4                        |
| 2 | Valvae with a dorso-proximal process in male genitalia  | 3                        |
| – | Valvae without dorso-proximal process in male genitalia; gnathos distinctively divided into two sclerotized lunate plates; sacculus forked from about basal 1/3, then forming two large processes; distal 1/4 of aedeagus with a few small spines | <b>bifida</b> sp. n.     |
| 3 | Valvae asymmetrical: left sacculus apically with two short processes, right sacculus with a small dorsal process having pointed apex, ventral process absent; juxta somewhat U-shaped   | <b>abnormis</b> sp. n.   |
| – | Valvae symmetrical, sacculus with distal process long and curved, lanceolate distally; juxta elliptical   | <b>lanceolata</b> sp. n. |
| 4 | Fore wing with streak and spots   | 5                        |
| – | Fore wing with spots only   | 7                        |
| 5 | Valvae with a dorso-proximal process  | 6                        |

- Valvae without dorso-proximal process, uncus large; gnathos large and broad; valvae elongate, not obviously expanded; aedeagus divided into two subequal branches from basal 1/3 *magnignatha*
- 6 Tegumen laterally with a small process at about middle; valvae elongate; sacculus with distinct distal process *hainanensis*
- Tegumen laterally without a process; valvae with distal part dilated; sacculus without distal process *asymmetrica*
- 7 Valvae without dorso-proximal process 8
- Valvae with a dorso-proximal process 9
- 8 Uncus distally dilated; gnathos rounded and spinulose; sacculus short, subtriangular, without spines distally; aedeagus divided into two parts from basal 1/3 *grandis*
- Uncus more or less rectangular; gnathos irregularly shaped, laterally with a long process; sacculus extremely elongate, with dense spines distally; aedeagus not divided *pynocephala*
- 9 Valvae with very small and short dorso-proximal process 10
- Valvae with large dorso-proximal process, longer than half length of costa 11
- 10 Uncus very small; costa without process; sacculus with distal process bent downward; aedeagus with cornuti composed of a group of short spines at about 2/3 *furvimacularis*
- Uncus rather long; costa with a phylliform process at about middle; sacculus without distal process, but with a patch of strong spines; aedeagus without cornuti *pallidia*
- 11 Valvae with downward bent dorso-proximal process; sacculus with a distal process dorsally, without obvious distal process and fine spines ventrally **curva** sp. n.
- Valvae with inward curved dorso-proximal process; sacculus with a distal process both dorsally and ventrally, ventral process with fine spines *weishana*

## THE DESCRIPTIONS OF THE NEW SPECIES

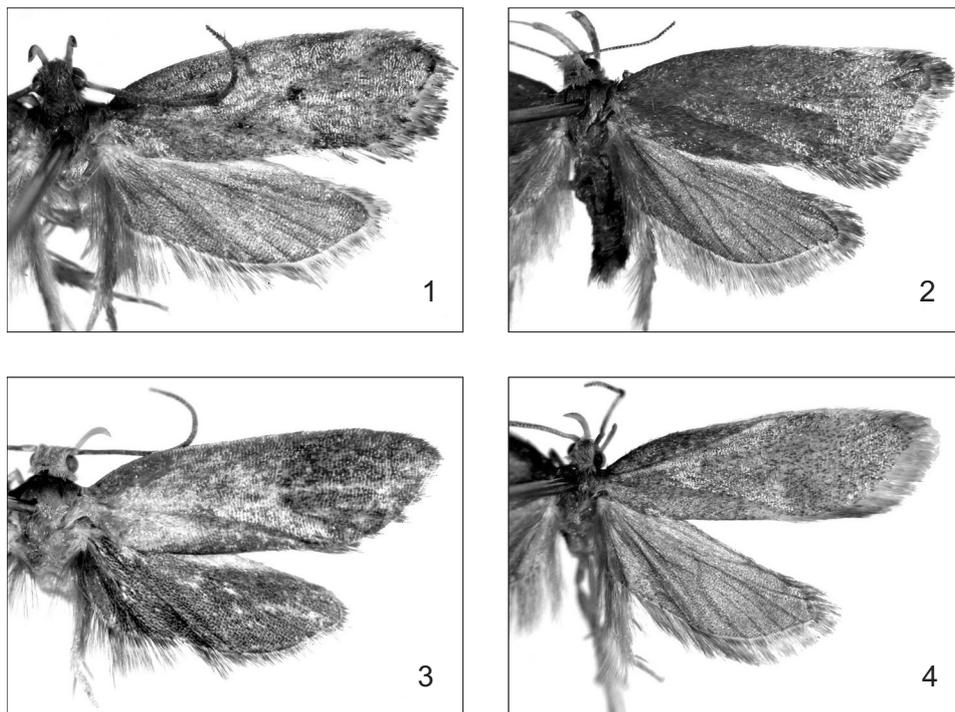
***Irepacma curva* sp. n.**  
(Figs 1, 5, 9–10)

Holotype: male, Jiangkou (27.41°N, 108.50°E), Guizhou Province, alt. 1700 m, 29.VII.2001, leg. Houhun Li and Xinpu Wang.

Paratype: 1 female, same data as holotype.

Diagnosis. This species is similar to *Irepacma pingensis* MORIUTI, SAITO et LEWVANICH, 1985, but may be separated from it by the three distinct blackish spots on the fore wing; valva not obviously dilated distally, juxta somewhat rounded and aedeagus with apex slightly sinuate in the male genitalia; signum with basal plate relatively larger than that of the latter species in the female genitalia.

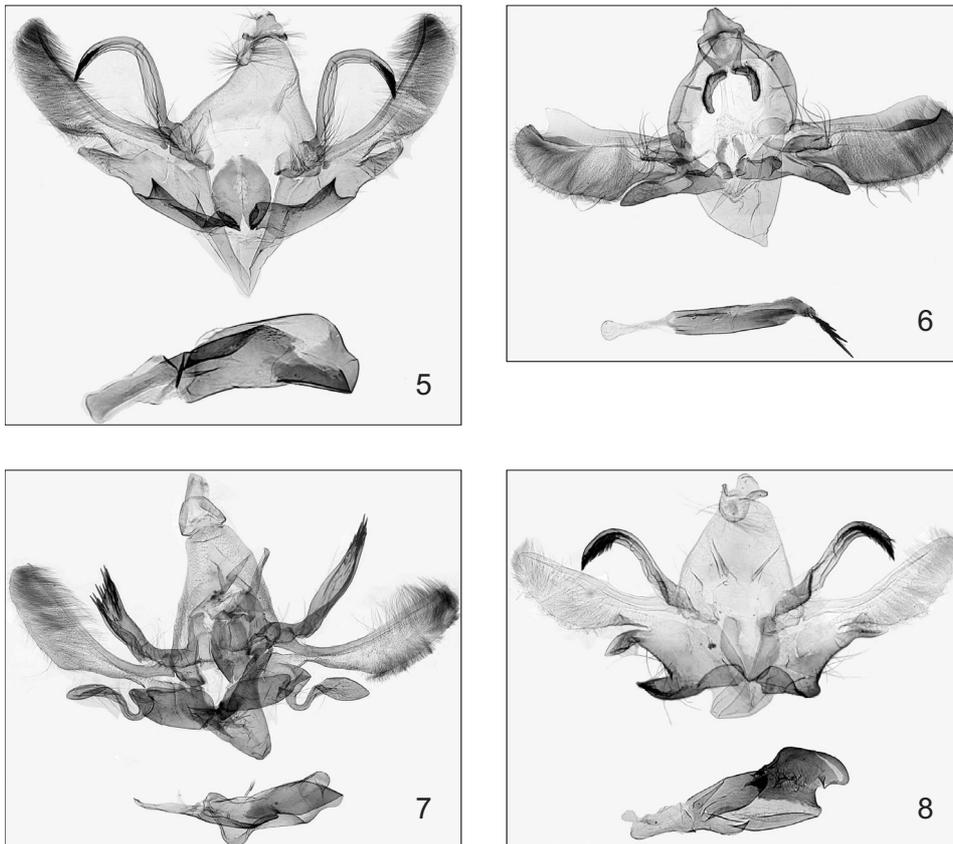
Description: Adult (Fig. 1). Wingspan 19.0–23.0 mm. Head grayish brown. Labial palpi whitish yellow, with dense grayish brown scales on outside surface except for distal end, apex pointed.



**Figs 1–4.** Adults of *Irepacma* spp. 1 = *I. curva* sp. n. (holotype, male); 2 = *I. bifida* sp. n. (paratype, female); 3 = *I. lanceolata* sp. n. (holotype, male); 4 = *I. abnormis* sp. n. (holotype, male)

Antennae with dorsal surface brown, ventral surface pale yellowish brown. Thorax and tegulae fuscous, sparsely with yellowish scales on posterior margin. Fore wings yellowish brown, with scattered ochreous yellow scales and dense dark brown scales at tornus and near apex; costal margin gently arched; termen oblique; apex rounded; blackish brown spot set respectively at middle and near end of cell as well as at middle of fold; cilia brown mixed with grayish yellow. Hind wings and cilia gray. Fore legs grayish black, with whitish yellow rings; mid legs grayish, tarsi deep gray, each segment yellowish white on end; hind legs whitish yellow, tarsi pale gray, each segment with yellowish white rings.

Male genitalia (Fig. 5). Uncus small, somewhat trapezoidal in shape. Gnathos circular, thin, with long hairs. Tegumen broad, trapezoid. Valvae elongate; costa gently arched inward, with naked edge; dorso-proximal process long and sclerotized, bent downward, with long hairs at base and short dense spines in distal 1/7, pointed; apex rounded. Sacculus longer than half length of valva, with distal 1/3 more or less lanceolate, setose, blunt at apex; ventral margin sclerotized, spinulate, distally



**Figs 5–8.** Male genitalia of *Irepacma* spp.: 5 = *I. curva* sp. n. (holotype, slide no. W01299); 6 = *I. bifida* sp. n. (holotype, slide no. W01252); 7 = *I. lanceolata* sp. n. (holotype, slide no. W03029); 8 = *I. abnormis* sp. n. (holotype, slide no. W01248)

protruded and pointed dorsad. Saccus triangular, with pointed apex. Juxta large, somewhat oval in shape. Aedeagus stout, basal 1/3 much thinner than distal 2/3; apex sinuate.

Female genitalia (Figs 9–10). Papillae anales large, more or less square in shape, caudal margin rounded. Apophyses posteriores almost as long as papillae anales. Eighth sternite posteriorly with two sclerotized subtriangular plates. Antrum short, heavily sclerotized. Ductus bursae short, partially sclerotized. Corpus bursae small, elliptical. Signum large, irregularly triangular, dentate along one edge, spiniform distally.

Distribution: China (Guizhou).

Etymology: The specific name is derived from the Latin *curvus* (curved), to note the shape of dorso-proximal process of valvae in the male genitalia.

### ***Irepacma bifida* sp. n.**

(Figs 2, 6, 11–12)

Holotype: male, Mt. Fanjing (27.55°N, 108.41°E), Guizhou Province, alt. 1700 m, 1.VI.2002, leg. Xinpu Wang.

Paratypes: 2 males and 3 females, 28.V–1.VI.2002, same locality as holotype.

Diagnosis. This species may be separated from all the other described congeners by the following characters: the fore wings evenly deep gray; in the male genitalia, gnathos distinctly divided into two sclerotized lunate plates; in the female genitalia, signum very large, spiniform, with small teeth at the recurved edge.

Description: Adult (Fig. 2). Wingspan 18.0–24.0 mm. Head pale orange yellow. Labial palpi somewhat pale ochereous yellow, ending in point. Antennae grayish yellow, with brown rings. Thorax and tegulae deep gray. Fore wings evenly deep gray; costal margin arched; termen oblique; apex roundly protruded; cilia gray, tinged with yellowish brown. Hind wings and cilia gray. Legs pale yellowish white, with pale gray scales on outside.

Male genitalia (Fig. 6). Uncus small, triangular in shape. Gnathos large and sclerotized, distinctively divided into two sclerotized lunate plates, finely haired; lateral arms as long as lunate plate. Tegumen broad, with anterior margin deeply concave, lateral sides wide, greatly extended. Valvae relatively broad except for narrowed basal 1/3; costa slightly concave beyond middle, convex near apex and forming small subtriangular projection; dorso-proximal process absent. Sacculus slightly longer than half of valva; basal 1/3 of dorsal margin sclerotized, with a small rounded process distally pointing upward; forked from about basal 1/3 and forming two large processes having rounded apex; dorsal process short, with large setae distally; ventral process larger and longer, with fine hairs. Saccus large and broad, roughly triangular, weakly sclerotized, distally with papilla. Juxta relatively small, a pair of weakly sclerotized, narrowed plates curved inward. Aedeagus slender; basal 1/3 very thin, expanded at base; middle portion straight, parallel-sided; distal 1/4 composed of a few long spines.

Female genitalia (Figs 11–12). Papillae anales short and broad, quadrate. Apophyses posteriores longer than papillae anales. Eighth sternite posteriorly with two sclerotized, transversal plates; lamella antevaginalis large, dumbbell-like, sclerotized. Antrum heavily sclerotized, irregularly trape-

zoidal, a little shorter than papillae anales; posterior margin concave, laterally more or less projected. Ductus bursae partially sclerotized. Corpus bursae a little longer than ductus bursae, elliptical. Signum very large, spiniform, expanded basally, with small teeth at the recurved edge.

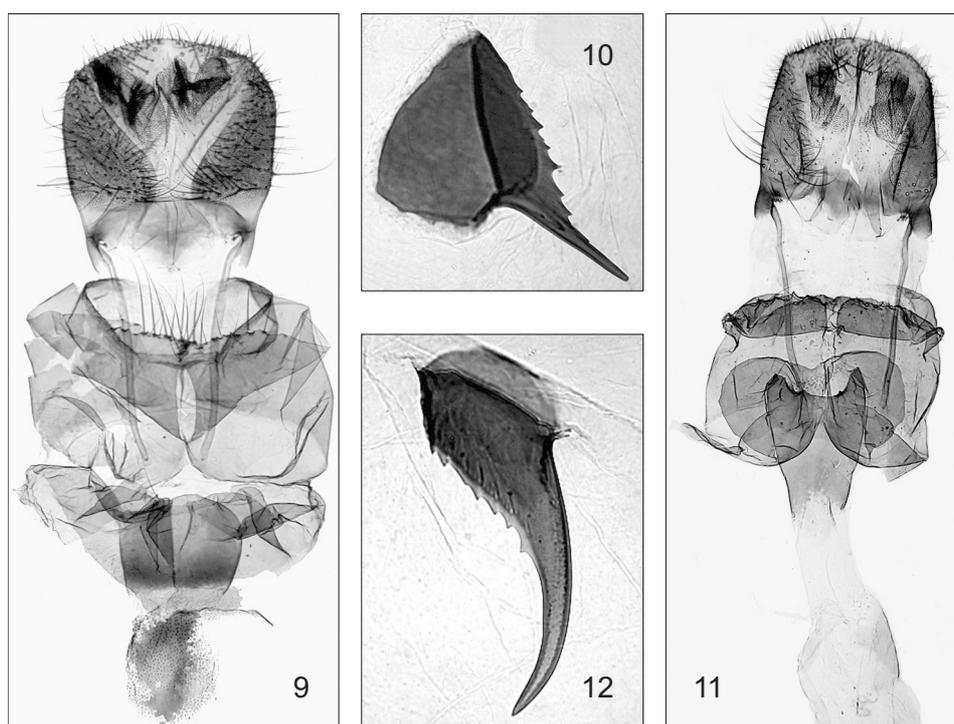
Distribution: China (Guizhou).

Etymology: The epithet of this new species is from the Latin *bifidus* (split in two), in reference to the shape of gnathos.

### ***Irepacma lanceolata* sp. n.**

(Figs 3, 7)

Holotype: male, Hefeng (29.53°N, 110.02°E), Hubei Province, alt. 1260 m, 17.VII.1999, leg. Houhun Li.



**Figs 9–12.** Female genitalia of *Irepacma* spp.: 9–10 = *I. curva* sp. n. (paratype, slide no. W01300); 11–12 = *I. bifida* sp. n. (paratype, slide no. W01253); 9, 11 = ostium and genital plate; 10, 12 = magnified signum

**Diagnosis.** This species is similar to *Irepacma weishana* WANG et LI, 2002, but differs from it by the following characters: wings completely black, without any markings; in the male genitalia, sacculus without distinct ventral process, distal process longer and aedeagus not truncate at apex.

**Description:** Adult (Fig. 3). Wingspan 17.5 mm in male. Head orange yellow except for vertex shining white, posterior area tinged yellowish brown. Labial palpi orange yellow, ventral surface tinged black in distal 1/3. Antennae with scape yellow, flagella black. Thorax, tegulae and wings evenly black. Legs whitish yellow, tibiae and tarsi with grayish rings or patches.

**Male genitalia** (Fig. 7). Uncus quite small, nearly trapezoidal, sparsely with long hairs. Gnathos an irregularly rounded circle, weakly sclerotized. Tegumen relatively long and narrow, with posterior half somewhat trapezoidal, deeply concave at middle of anterior margin, laterally extended, bent inward distally. Valvae narrowed basally, distal half widened and nearly parallel-sided, finely haired; costa naked and strongly sclerotized, basal half arched inward; process at dorso-proximal corner thick, heavily sclerotized, almost as long as tegumen, distal portion with strong spines. Sacculus sclerotized, basal portion broad, middle portion thin and strongly curved, distal portion broad lanceolate. Saccus short, more or less triangular in shape. Juxta large, elliptical. Aedeagus with basal 1/3 quite thin, distal 2/3 thick, with a rounded process near apex.

**Female:** Unknown.

**Distribution:** China (Hubei).

**Etymology:** The name is derived from the Latin *lanceolatus* (lanceolate), to note the shape of the distal portion of sacculus.

### ***Irepacma abnormis* sp. n.**

(Figs 4, 8)

**Holotype:** male, Mt. Fanjing (27.55°N, 108.41°E), Guizhou Province, alt. 1390 m, 29.V.2002, leg. Xinpu Wang.

**Diagnosis.** This new species is closely allied to *Irepacma weishana* WANG et LI, 2002, but may be distinguished from the latter by valva with dorso-proximal process much longer, sacculus asymmetrical, juxta somewhat U-shaped and aedeagus concave at apex.

**Description:** Adult (Fig. 4). Wingspan 19.0 mm. Head, labial palpi and antennae pale yellow. Labial palpi longitudinally with a blackish line composed of black scales on ventral surface. Antennae with brown rings on dorsal surface. Thorax and tegulae blackish brown, mixed with yellow. Fore wings with ground colour somewhat lutescent, clothed with brown scales; costal margin slightly arched; termen more or less oblique; apex roundly protruding; cilia pale gray. Hind wings and cilia deep gray. Legs pale yellow; tarsi of fore legs with gray rings, tibiae and tarsi of mid legs mixed with pale gray hairs.

Male genitalia (Fig. 8). Uncus very small and rounded, mound-like. Gnathos relatively large, somewhat ribbon-like, with anterior margin rounded. Tegumen short and broad, trapezoidal, deeply concave at anterior margin. Valvae elongate, basal 1/3 narrowed, widest at middle; costa gently arched, with naked edge; dorso-proximal process strongly sclerotized, nearly as long as valva, its distal 1/3 with dense spines, bent downward, ending in point; asymmetrical: left sacculus apically with two short processes, dorsal process smaller, somewhat phylliform, sparsely haired, ventral process larger, with dense spines near ventral margin, apex acute; right sacculus with a small dorsal process pointed at apex, ventral process short and rounded. Saccus relatively small and weakly sclerotized. Juxta large, somewhat U-shaped; posterior margin deeply concave at middle, anterior margin a little protruded at middle. Aedeagus stout, narrow in basal 1/4, gradually widened near to apex; apex roundly concave and forming a large rounded process distally.

Female: Unknown.

Distribution: China (Guizhou).

Etymology: This specific name is derived from the Latin *abnormis* (abnormal), to note the asymmetry of sacculus.

\*

*Acknowledgements* – The authors are grateful to Dr. T. SAITO (Entomological Laboratory, College of Agriculture, University of Osaka Prefecture, Japan) and Professor Y. Q. LIU (Institute of Zoology, Chinese Academy of Sciences, China) for their kind assistance by sending the material used in this study. We also feel grateful to the anonymous reviewer who kindly gave us valuable advice for the improvement of the manuscript. The project was supported by the National Natural Science Foundation of China (No. 30470211).

## REFERENCES

- MEYRICK, E. (1894) On a collection of Lepidoptera from Upper Burma. *Trans. Ent. Soc. Lond.* **1894**: 1–29.
- MORIUTI, S., SAITO, T. & LEWVANICH, A. (1985) Thai species of *Periacma* Meyrick and its allied two new genera (Lepidoptera: Oecophoridae). *Bull. Univ. Osaka Pref. (B)* **37**: 19–50.
- MORIUTI, S., SAITO, T. & LEWVANICH, A. (1989) Thai species of the Oecophorine genera *Periacma*, *Irepacma* and *Ripeacma* (Lepidoptera: Oecophoridae). *Microlepidoptera of Thailand* **2**: 113–152.
- WANG, S. & ZHENG, Z. (1997) Three new species of the genus *Irepacma* from Shaanxi Province (Lepidoptera: Oecophoridae). *Entomologia Sinica* **4**(1): 9–14.
- WANG, S. & LI, H. (2002) Four new species of the genus *Irepacma* Moriuti, Saito & Lewvanich, 1985 from China (Lepidoptera: Oecophoridae). *SHILAP Revta. lepid.* **30**(118): 155–161.
- WANG, S., LIU, Y. & LI, H. (2002) Two new species of the genus *Irepacma* from China (Lepidoptera: Oecophoridae). *Acta Entomologica Sinica* **45**(Suppl.): 64–66.

Revised version received May 5, 2005, accepted May 23, 2005, published June 30, 2005