

Critical Effect on Pace of Advancement and Size of Rana Curtipes Tadpoles

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Abstract – *This geological fluctuation of age sythesis causes fundamentally lower mean age and body size of examples from the southern populaces. Despite the fact that in the Ukraine the action season is longer than in Moscow Region, the development pace of two-and three-year-old frogs from southern populaces is lower, and just at age of four they become bigger than examples from the ZBS populace. These distinctions are brought about by higher conceptive exertion both in females and guys from southern populaces. Morphologically, guys and females from southern populaces vary most fundamentally by shin and hip length (supreme and relative estimations of the characters are higher in guys). When contrasted with the Ukrainian populaces, both genders in the ZBS populace have lower estimations of these characters. The general sex contrasts by total and relative estimations of these characters are increasingly articulated in the ZBS populace. In the interim, concerning body size, guys are greater than females in the ZBS populace, and this distinction remains and is much progressively articulated in the southern populaces. Geographic variety in body size is more communicated in females than in guys, which compares to increasingly critical sex contrasts in the Ukrainian populaces in such manner.*

Keywords: Low Sex Ratio, High Sex Ratio

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INTRODUCTION

Normal determination models will in general be founded on a solitary wellness part, while sexual choice mirrors the exchange of reasonability choice (e.g., expenses of decorations, expenses of fastidiousness), fruitfulness choice (e.g., exchange offs between parental consideration and mating openings) and choice on mating and preparation rates. Fourth, sexual choice models need to address sex contrasts, for example, the sex-constrained articulation of qualities and contrasts in the quality and bearing of choice between the sexes. Fifth, as a result of sex-differential choice, hereditary subtleties may assume a more noticeable job than in other transformative models.

Specifically, autosomal versus sex chromosomal legacy may firmly influence the result of advancement. 6th, the convolution between the sexes regularly appears as a transformative weapons contest, bringing about progressing motions or much progressively complex non-balance elements. In like manner, the examination of sexual determination regularly requires more refined dynamical methodologies than the old style balance arranged techniques. Seventh, sexual determination is naturally connected to different procedures, similar to sex ratio development the

advancement of parental consideration and speciation. It is winding up progressively certain that vigorous ends on the result of sexual determination must be acquired if such procedures are unequivocally incorporated into the models.

The Coating morph climatic space is exceptional in that it is just found inside the limits of Brazil. This space is known for high temperatures, low relative mugginess, a hot and semi-dry atmosphere which is regularly occasional, with a long dry season and brief times of variable precipitation. The phytophysiognomic eccentricities found in greenery, atmosphere and land attributes of this biome support distinctive microhabitats and thus, display rich vegetation. Test dines are a piece of the gathering of exothermic Sauropsida that normally display a long life expectancy, deferred sexual development, and moderate development. These qualities have been related with a low pace of individual substitution among populaces, making this gathering increasingly helpless to anthropogenic dangers and ecological enduring. Statistic parameters are basic instruments to assess the genuine status of preservation of test dine networks. Statistic studies about geotropically

freshwater turtles are restricted, albeit a need for a superior comprehension of the populace elements.

Solid connection between populace elements of test dines and climatic variety are normal, bringing about an occasional conceptive cycle. The duration and level of natural exercises, for example, rummaging, warm guideline and migration are dictated by hereditary associations and ecological conditions. Some freshwater turtles indicated greater movement during hotter months that advance thermoregulatory exercises.

Anyway some different species, for example, those having a place with the Chaldea family show estimation conduct during long dry periods. Migration has likewise been seen in geotropically freshwater turtles scanning for positive conditions. These viewpoints straightforwardly impact the populace thickness and sex ratio, they structure a set that is answerable for varieties in the populace elements of the gathering.

RESEARCH METHODOLOGY

The tadpoles that were raised at $29 \pm 2^\circ \text{C}$ (Group A) and $19 \pm 2^\circ \text{C}$ (Group B) to think about the developmental stages and those gathered from common environment (stream) (Group C) were utilized to contemplate the labial teeth column structures. Twenty to thirty tadpoles were inspected at each developmental stage. Different morphological features of oral armature were outlined and teeth push recipe was resolved by the method of changed by Webb and to present the "minor teeth."

"The term minor teeth" alludes to the short columns of teeth found at the parallel edges of oral circle that are not related with either the upper or lower jaw. As per Altig method (1970) in the recipe $8(3-8)/8(1)$ the numerator shows the quantity of columns on the upper jaw and denominator demonstrates the lines on the lower jaw. Lines with middle holes are in enclosures and a range in the columns is hyphenated. So as to present the negligible teeth, Webb and Korky altered the Altig phrasing. For instance in the recipe $8(3-8)/2-3/8(1)$, the 2-3 between two slanting lines speaks to a few lines of minor teeth.

The tadpoles that were raised in research center to ponder the developmental changes dependent on Taylor and Killers' (1946) distinct method were likewise used to acquire morph metric information on body changes. The accompanying morph metric factors - trunk length, tail length, rear leg length and all out body weight of 7 tadpoles at every phase from T-K Stage IV to XXV were taken. The purpose of beginning of rear appendage to the body was utilized as a milestone for the beginning of hind leg, beginning of the tail and the finish of the trunk. Net body weight was taken after the creatures were exclusively shaken in the hand to expel water connected to the body. The tadpole read for body weight to trunk length proportion conclusions were of similar weights within each stage.

Insights were finished by direct relapse examination utilizing stage as needy variable, to check the unwavering quality of transformative lists.

RESULTS

The quantity of teeth columns was changed with the phases of the tadpole. Temperature and size of the tadpole had no impact on the quantity of labial teeth push. Tadpoles gathered from quick waters (stream) had a larger number of teeth columns than that raised in aquarium. A definite rundown of teeth formulae of tadpoles raised at $29 \pm 2^\circ \text{C}$ (Group A), $19 \pm 2^\circ \text{C}$ (Group B) and gathered from stream (Group C) have been displayed in Tables 3.1 and 3.2.

Table 3.1 Labial teeth row formula of Rana curtipes tadpoles

Stages	Group A Laboratory reared ($29 \pm 2^\circ \text{C}$)		Group B Reared in aquarium ($19 \pm 2^\circ \text{C}$)		Group C Collected from natural habitat- stream ($19 \pm 2^\circ \text{C}$)	
	Formula	Per cent	Formula	Per cent	Formula	Per cent
External gill stage	Without teeth	-	Without teeth	-	Not collected	-
One external gill covered stage	$1/0/2(1)$ $1/0/3(1)$	53 47	$1/0/2(1)$ $1/0/3(1)$	48 52	Not collected	-
Operculum complete stage	$1/0/2(1)$ $2(2)/0/2(1)$ $2(2)/0/3(1)$	20 53 27	$1/0/2(1)$ $2(2)/0/2(1)$ $2(2)/0/3(1)$	21 48 31	$1/0/2(1)$ $2(2)/0/2(1)$ $2(2)/0/3(1)$	19 49 32
Feeding stage	$3(3)/0/3(1)$ $3(3)/0/4(1)$	59 41	$3(3)/0/3(1)$ $3(3)/0/4(1)$	57 43	$3(3)/0/3(1)$ $3(3)/0/4(1)$	55 45
Pre-limb stages	$4(3-4)/0/4(1)$ $5(3-5)/0/4(1)$ $5(3-5)/0/5(1)$ $5(3-5)/0/6(1)$	20 46 26 8	$4(3-4)/0/4(1)$ $5(3-5)/0/4(1)$ $5(3-5)/0/5(1)$ $5(3-5)/0/6(1)$	24 42 21 13	$4(3-4)/0/4(1)$ $5(3-5)/0/4(1)$ $5(3-5)/1/5(1)$ $6(3-6)/1/6(1)$ $6(3-6)/2/6(1)$	15 12 20 37 16

(Table 3.1 Contd. . .)

Limb bud stages (I-V)	$5(3-5)/1/5(1)$ $6(3-6)/0/6(1)$ $6(3-6)/1/6(1)$ $7(3-7)/1/6(1)$	14 30 36 20	$5(3-5)/0/5(1)$ $6(3-6)/0/6(1)$ $6(3-6)/1/7(1)$ $7(3-7)/1/6(1)$ $7(3-7)/1/6(1)$	25 27 11 19 18	$6(3-6)/1/6(1)$ $6(3-6)/2/7(1)$ $7(3-7)/3/6(1)$ $8(3-8)/3/7(1)$ $8(3-8)/4/8(1)$ $9(3-9)/4/7(1)$ $9(3-9)/4/8(1)$	9 20 9 17 19 18 8
Foot paddle stages (VI-X)	$7(3-7)/2/6(1)$ $7(3-7)/2/7(1)$ $8(3-8)/3/6(1)$	27 34 39	$7(3-7)/2/6(1)$ $7(3-7)/2/7(1)$ $8(3-8)/2/7(1)$ $8(3-8)/3/8(1)$	47 10 9 34	$8(3-8)/3/7(1)$ $8(3-8)/4/8(1)$ $9(3-9)/5/7(1)$ $9(3-9)/5/8(1)$ $10(3-10)/5/8(1)$	19 23 17 13 18
Foot stages (XI-XXV)	$7(3-7)/2/7(1)$ $8(3-8)/0/7(1)$ $8(3-8)/2/6(1)$	22 56 22	$7(3-7)/0/6(1)$ $8(3-8)/1/7(1)$ $8(3-8)/2/7(1)$ $8(3-8)/2/8(1)$	19 34 37 10	$8(3-8)/2/8(1)$ $9(3-9)/2/7(1)$ $9(3-9)/4/8(1)$ $9(3-9)/3/8(1)$ $10(3-10)/3/8(1)$	10 19 43 16 12

(Contd. . .)

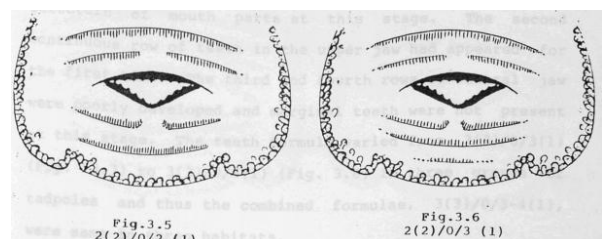
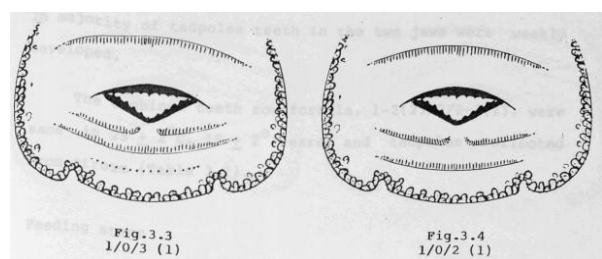
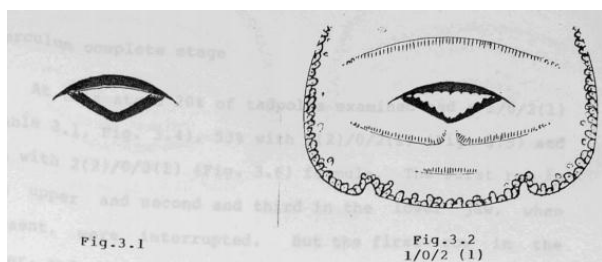
Well developed hind limb stages (XVIII-XXIV)	$7(2-7)/0/7(1)$ $8(3-8)/0/6(1)$ $8(2-8)/0/6(1)$	36 31 33	$7(2-7)/0/6(1)$ $8(3-8)/0/7(1)$ $8(2-8)/0/8(1)$	35 24 41	$8(3-8)/0/7(1)$ $9(2-9)/0/8(1)$ $9(3-9)/1/8(1)$ $10(2-10)/1/8(1)$ $10(3-10)/1/8(1)$	34 22 30 4 10
One forelimb stage (XX)	$7(1-7)/0/4(1)$ $8(2-8)/0/6(1)$	61 39	$7(1-7)/0/4(1)$ $8(2-8)/0/6(1)$	56 44	$9(3-9)/0/6(1)$ $8(2-8)/0/7(1)$ $7(1-7)/0/6(1)$	21 42 37
Both limb and tail stages (XXI-XXIV)	$5(1-5)/0/3(1-3)$ $4(1-4)/0/3(1-3)$ $4(1-4)/0/2(1-2)$ $3(1-3)/0/2(1-2)$	8 32 35 27	$5(1-5)/0/3(1-3)$ $4(1-4)/0/3(1-3)$ $4(1-4)/0/2(1-2)$ $3(1-3)/0/2(1-2)$	12 37 39 12	$5(1-5)/0/3(1-3)$ $4(1-4)/0/2(1-2)$ $3(1-3)/0/3(1-3)$	23 41 36
Froglet (XXV)	Without labial teeth		Without labial teeth		Without labial teeth	

One gill covered stage

Tadpoles arrived at one gill secured arrange with mouth extended and a solitary column of papillae on the sides of the upper and lower jaws. While the

edges of lower jaw had a solitary line of papillae the foremost edge of upper jaw was with no papillae. The noses turned out to be feebly serrated. In this stage, 53% of tadpoles inspected had a teeth column of 1/0/2(1) (Table 3.1, Fig. 3.2) and the staying forty seven had 1/0/3(1) (Fig. 3.3) with a consolidated equation of 1/0/2-3(1) (Table 3.2) at $29 \pm 2^\circ \text{C}$.

There was just one, continuous, push in the upper jaw. In any case, the number shifted from 2 to 3 in the lower jaw and the first in it was hindered by an average hole. Peripheral teeth were missing.



Teeth line structure of *Rana curtipipes* tadpoles: . Fig. 3.1 External gill organize. Fig. 3.2 and 3.3 One gill secured arrangement. Figs. 3.4 to 3.6 operculum complete stage

REGION OF HIGH SEX RATIO

Table No. demonstrates the tehsil savvy country sex ratio example and their change saw during 1981 to 2011. The high rustic sex ratio was found in Khanapur, Atpadi and Shirala in 1981. During 1991 it is found in Khanapur and Shirala with 1042 and 1053 sex ratio separately. In the year 2011, Khanapur (1013) and Shirala (1019) under high sex ratio. The decrease in high sex ratio during 2011 in Khanapur (1003) and Shirala (1015) tehsil of Sangli District, because of expanding power of out migration of females. The degree of farming advancement occurred giving open doors from agro based and little scale businesses outside the tehsil. There was likewise serve dry season condition (1972), everywhere throughout the

examination region, coming about male outmigration. The more noteworthy arrangement of medicinal offices gave to the towns, have declined of female mortality. The high extent of joblessness in provincial region lead to a decay rustic sex ratio in study region. The sex ratio stay same during 1991 to 2011. There was no any wonderful variance in the quantity of tehsil under the high sex ratio class. There were significant changes in sex ratio of Atpadi tehsil after, 1991 for example 952(1991), 986 (2011) and 995(2011).

Table. Sangli District : Rural Sex Ratio 1981-2011

Tehsil	Decade				Change		
	1981	1991	2001	2011	1981-91	1991-01	2001-11
Miraj	929	928	939	943	-1	11	4
Tasgaon	963	958	952	950	-5	-6	-2
Khanapur	1062	1042	1013	1003	-20	-29	-10
Atpadi	1002	952	986	995	-50	-4	9
Jat	962	934	948	951	-28	14	3
K. M'Kal	986	971	962	963	-15	-9	1
Walwa	946	944	938	936	-2	-6	-2
Shirala	1066	1053	1019	1015	-13	-34	-4
District total	980	966	962	963	-14	-4	1

*Source: 1. District Census Handbook of Sangli, districts, 1981-91.

There was slight change means increment in number of tehsil under this classification for example Jat tehsil with 951 sex ratio The improvement in water system offices had prompted advancement in agribusiness exercises which made change of customary farming into innovatively all around created framework. The development of agro based ventures look at the particular migration.

REGION OF LOW SEX RATIO (BELOW 950):

In the year 1981 Miraj and Walwa tehsil were under this class in the investigation territory. This locale goes under River bowl like Krishna and Warana described by ripe soil with significant levels of agrarian and modern advancement. Water system offices are accessible in huge number.

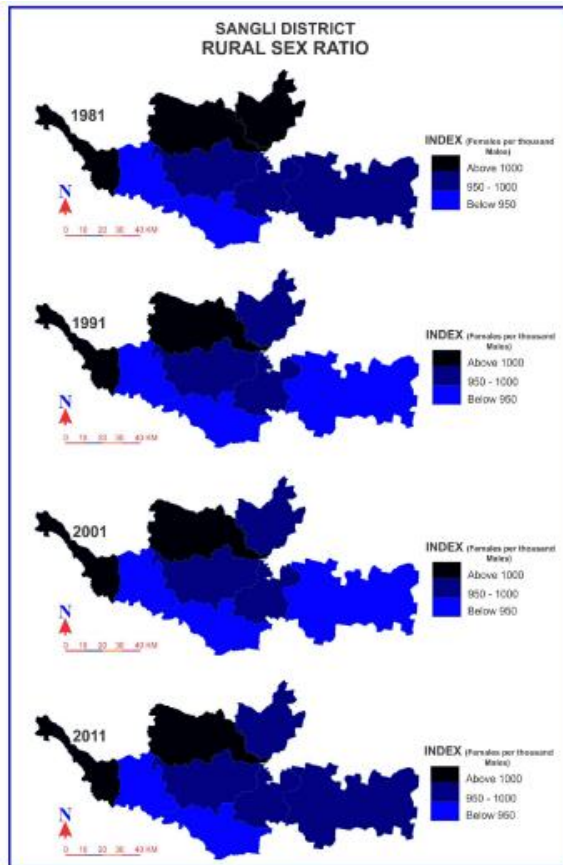


Fig. 5.2

The advancement of water system assumes extremely imperative job in horticultural improvement. The present improvement has brought about the utilization of manures current innovation and so forth. This changed customary subsistence nature of horticulture into business agribusiness. It specific for sugarcane, grapes and vegetables. The generous base of agreeable development has advanced the foundation of sugar processing plants material industry and dairy industry. The work serious waters cultivating and accessibility of employments and openings has checked the male specific migration. In 2011 there was no adjustment in this classification yet in the year 2011 the quantity of tehsils were diminished in Jat tehsil.

CONCLUSION

The present study is therefore, an attempt to introduce this little known tropical species to the scientific world and to establish the influence of temperature and hormones on development and metamorphosis. The results of the present study clearly indicate that *Rana curtipes* are nocturnal in habit, sluggish in their movements and uncomfortable in water. They approach water only during the breeding season. Even though, May to October represents the active breeding phase, the onset and duration of it varies slightly from year to year according to the availability of rain. The ovipositor coincides with low temperature either in the morning or after a heavy rain in the evening or night.

Sex ratio analysis reveals the presence of more males than females in the south Western Ghats population of

Rana curtipes. A distinct difference in size between males and females are also found in this study. Males are comparatively smaller than the females. The current study shows that the development and metamorphosis of *Rana curtipes* is relatively prolonged and has larger tadpoles than any other tropical anuran species. Temperature has profound influence on the development period and size of *Rana curtipes* tadpoles.

The results of RIA studies in *Rana curtipes* confirm the earlier findings in other anurans that circulating levels are low during premetamorphic period, increases gradually in prometamorphic stages and reaches peak level during climax stages. The circulating thyroid hormones decline during post-climax and froglets have lower hormone level than prometamorphic tadpoles. Administration of T₄ reveals that monodeiodination can be induced in premetamorphic *Rana curtipes* tadpole's precociously. From the data of present study it is also revealed, for the first time, that corticosterone a predominant corticoid present in amphibians.

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